CHAPTER 34

Positive Aging

GEORGE E. VAILLANT

Alfred Paine was a model of the Sad-Sick. True, he did not acknowledge either his alcoholism or his depression. Like Pollyanna, Voltaire’s Dr. Pangloss, and Mad Magazine’s Alfred E. Neuman, Paine was a master of denial. On pencil-and-paper tests of neuroticism, he scored very low on the depression subscale. On questionnaires, he described himself as close to his children and in good physical health. Thus, it was only by interviewing him personally, talking with his wife, examining his objective medical record, reading the disappointed questionnaires from his children—and then, finally, by reading his obituary—that Alfred Paine’s misery could be fully appreciated. The uncomplaining nature of Paine’s written replies did not alter the fact that his life story had always been terribly sad.

On the other hand, Richard Luckey was a well-loved child who took excellent care of himself, but unlike Alfred Paine, Luckey had come from more modest beginnings. None of his four grandparents had gone beyond grade school. One grandfather had been a police officer and the other a self-made owner of a large baking company. His father graduated from high school and went on to become a successful businessman, so Richard Luckey, like Alfred Paine, had gone to an excellent boarding school. After college, Luckey became head of two successful businesses (one of which he created)—at the same time. Always careful to take care of himself, Luckey married well. Unlike Paine, he knew how to take care of his money, how to appreciate his wife, and how to make his own luck. More on these two characters later.

As we contemplate surviving until old age, a common worry is that we will spend decades helpless and/or in pain. We forget to look at the positive. Our problem is that there have been many longitudinal studies of physical longevity (e.g., Baltes & Mayer, 1999; Dawber, 1980; Fries, 1980; Rowe & Kahn, 1999) but very few studies that have examined psychological longevity.

The mission of positive aging is very clear: to add more life to years, not just more years to life. For example, we worry that impotence is an inevitable consequence of old age, but Simone de Beauvoir (1972) cheers us. She offers the hopeful
example of an admittedly exceptional 88-year-old man. He reported intercourse with his 90-year-old wife one to four times a week. True, at 75 to 80, for most surviving husbands and wives in good health, the average is more likely to be once every 10 weeks (Bortz, Wallace, & Wiley, 1999).

To begin with, it is as profoundly misleading to look at the average old person as it is to look at the average 20-year-old car. Careful driving and maintenance are everything. Often, old cars evolve into cripples not because of aging but because of poor maintenance, poor driving, and misuse. So, too, with humans. Much of what we view as the inexorable decay of aging between ages 70 and 90 is a result of accident and disease. Proper maintenance is everything.

Eventually, the years take their toll, but an aging octogenarian can do almost everything a young person can do; it just takes a little longer and must begin a little earlier. Such limitations, however, did not impede Will Durant from winning the Pulitzer Prize for history at 83, or Frank Lloyd Wright from designing the Guggenheim Museum at 90, or 80-year-old marathones being able to run 26 miles faster than 99% of 20-year-olds. While performing his daily routine of cello practice, the 91-year-old Pablo Casals was once asked by one of his students, “Master, why do you continue to practice?” Casals answered, “Because I am making progress” (Heimpe1, 1981).

True, from age 30 on, nominal aphasia (our inability to remember names) steadily worsens, but this does not lead to Alzheimer’s. Over time, we also become less adept at remembering spatial cues, so, by 80, we lose our cars in parking lots. But we remain just as adept at remembering emotionally nuanced events as we did when we were much younger; and in the healthy, a majority of facets of intelligence have not declined.

A major difficulty in studying positive aging is measurement. Good health, both psychological and physical, is a very real and very tangible boon. But the quantification of good health is by no means easy. Two men have colostomies; for one man, it is only a minor inconvenience; for the other, it is a devastating blow to self-image. Why? To understand positive aging, we need to be able to answer this question. Most observers can agree on illness. But as soon as positive health is raised, a multitude of voices, often quite heated voices, cry value judgment.

In this chapter, I try to measure successful aging by assessing health—physical health and psychosocial health, both subjective health and objective health. Only when all four facets of health are present will good health be declared. First, with the passage of time, progressively diminished physical reserves are an inevitable part of aging, but the rate at which these diminished reserves occur is variable. Biologically, you can be young or old for your chronological age. Second, physical health involves experiencing the biological ravages of age without feeling sick. Good self-care, high morale, intimate friends, mental health, and coping strategies often make the difference between being ill and feeling sick. Third, age and social class are important. To control for age, all the participants reported in this chapter have been studied for 60 years, and each participant’s health was known at every age from 20 to 80. To control for social class, the health of two homogeneous cohorts at opposite ends of the social spectrum—a College cohort and an Inner-City cohort—was studied. Within-cohort differences and between-cohort similarities are those emphasized. Fourth, in 1948 the founders of the World Health Organization (WHO) defined health as “physical, mental and social well-being, not merely the absence of disease or infirmity” (WHO, 1952). Thus, measuring objective...
psychosocial health is more difficult than measuring physical health but an equally important task. At age 90, some people not only are active and still climb mountains but also are able to do so in good cheer and with close friends. That is even more desirable. Clearly, subjective mental health is as important to aging as are objective indicators. Healthy aging, then, is being both contented and vigorous as well as being not sad or sick or dead.

The College cohort included 268 Harvard University sophomores selected for physical and mental health c. 1940 (Vaillant, 1977). The socially disadvantaged Inner-City cohort included 456 nondelinquent schoolboys with a mean IQ of 95 and a mean education of 10 years (Glueck & Glueck, 1950, 1968). The details of the study have been well described in previous reports (Vaillant, 1995, 2002; Vaillant, Meyer, Mukamal, & Soldz, 1998).

To increase the chances of successful contrast and to minimize value judgment, the study, called the Study of Adult Development, focused on men at the ends of the health spectrum. In each cohort, I contrast the one-fourth of the men who lived out the past decade feeling the healthiest—the Happy-Well—with the one-half who spent most of the past decade either feeling both sad and sick or being dead. To reduce argument, I deliberately exclude the one man in four who fell somewhere in the gray zone of being either healthy or sick depending on the criteria chosen. In short, three-quarters of the men reflect black and white categories of aging—the Happy-Well, the Sad-Sick, and the Prematurely Dead—and one-quarter, the Intermediate group, are excluded (see Table 34.1).

Of 268 College men originally admitted to the study at about ages 19 to 20, 31 men (12%) died before age 50 or withdrew from the study. This left 237 College men. All men who died between 50 and 75 were classified as dead. The three-quarters who survived until 75 were classified Happy-Well, Intermediate, and Sad-Sick (see Table 34.1).

Of 456 Inner-City men originally admitted to the study at ages 12 to 16, 44 (10%) died by age 50 and 80 (17.5%) withdrew. This left 332 men in the study. Although they were 10 years younger than the College men, their objectively rated health (i.e., the proportion physically well, chronically ill, disabled, or dead) at 70 was the same as that of the College men at 80. Much of this variance came from

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<th>Table 34.1</th>
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<td>Definition of Positive Aging</td>
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<td>College</td>
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<td>Age 80</td>
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<td>Happy-Well</td>
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<td>Intermediate</td>
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<td>Prematurely Dead</td>
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Note: The Happy-Well, the Intermediate, and the Sad-Sick all survived until age 75 if College men and until age 65 if Inner-City men. However, at the time that the data for this chapter were analyzed, not all of the College men were quite 80 and not all of the Inner-City sample were quite 70.
differences in education, which, in turn, predicted obesity, cigarette and alcohol abuse, diabetes, and blood pressure. The variance did not depend on differences in parental social class per se. Part of the variance came from the fact that poor physical, and especially poor mental health, led to downward social mobility. Thus, adult social class is powerfully associated with physical health.

To differentiate the Happy-Well unambiguously from the Sad-Sick, I chose six contrasting dimensions of health. These measures are described in detail in Vaillant (2002) and Vaillant and Mukamal (2001):

1. Absence of objective physical disability (at age 75 for College Cohort or at age 65 for Inner-City Cohort): Every five years, the study sought from each College and Inner-City man a complete physical exam including chest x-rays, routine blood chemistries, urinalysis, and an electrocardiogram. A study internist, blind to psychosocial adjustment, then rated all of these physical examinations on a four-point scale (Vaillant, 1979). He rated the men as “1” if they were still without any irreversible illness and “2” if they were afflicted with an irreversible illness that was neither life shortening, nor disabling. Such illnesses might be mild glaucoma, treatable hypertension, or noncrippling arthritis. If in the judgment of the study internist, the College men suffered from an irreversible life-threatening illness, they were called a “3” or chronically ill. This category refers to illnesses that could be expected to be progressive and to shorten life or eventually to affect daily living, but which were not in the eyes of the study internist disabling. Examples of such illnesses are coronary thrombosis or diabetes or hypertension not fully controlled by medication.

Finally, the internist rated the men “4” if they suffered both irreversible illness and, in his judgment, significant disability. Examples are multiple sclerosis, chronic congestive heart failure, and disabling arthritis of the hip. Only this category “4” reflected unsuccessful aging. The men, after all, were 75 to 85 years old and could be expected to have some illnesses.

2. Subjective physical health at age 75: Since human beings are remarkably adaptable and suggestible, physical disability is in part subjective. When asked to rate their health subjectively, some depressed people may whine that their health is bad even when it is quite good, and some happy stoical people may boast that their health is excellent when in fact it is objectively poor. In public life, the severely physically ill John F. Kennedy and Franklin D. Roosevelt offer such examples. Still others were rated objectively disabled by their physicians and denied subjective disability not from stoicism and good cheer but by dissociating themselves from reality. The most common ailments of men and women who saw themselves as disabled but who were called not disabled by study physicians were arthritis and depression. Health is anything but black or white.

The rating for this second dimension of successful aging was subjective and was based on a 15-point scale of self-reported “Instrumental Activities of Daily Living” (Vaillant, 2002). The scale measured whether at 75 the men believed that they could still carry out most daily tasks as before. Such men reported that they still took part in activities such as tennis singles or downhill skiing or chopping wood. They could climb two flights of stairs without resting, carry their suitcases through airports, and walk two miles with their grandchildren although they might perform all of these tasks more slowly than in the past. Finally, they could still drive, care for the yard, travel, and shop without assistance.
3. Length of undislabled life: A third dimension of successful physical aging was how many years of living the men lost by subjective and/or by objective physical disability or from premature death. By definition, none of the Happy-Well had spent any time prior to age 80 disabled—either objectively or subjectively. By way of contrast, before age 80, the Prematurely Dead (those men dying between ages 50 and 75) had spent an average of 18 years either dead or disabled. Before age 80, the Sad-Sick had all spent at least 5 and an average of 9 years irreversibly disabled.

4. Objective mental health (range 9 to 23): There is not much fun in living to old age if you are unhappy, thus, this fourth dimension of successful aging was considered. At age 65, independent raters assessed the College and Inner-City men’s objective global mental health with good interrater agreement (Vaillant & Vaillant, 1990). Good objective mental health reflected late midlife success in four areas: work, love, play, and avoiding psychiatric care. A “mentally healthy” man continued to grow in and to enjoy his career until long after 50. Over the past 15 years, his marriage through his eyes and those of his wife would have been clearly happy. He had played games with friends and taken enjoyable vacations. He neither consulted psychotherapists nor took psychiatric medicines. On average, he took less than five days of sick leave a year. A low score on any single item was still consistent with excellent mental health, but some men, often those with alcohol abuse or major depression before age 50, fared badly in most or all areas and, therefore, fell into the bottom quartile (range 15 to 23). By definition, none of the Happy-Well and a majority of the Sad-Sick fell in the bottom quarter of mental health.

5. Objective social supports (range 2.5 [best] to 14.0 [worst]): Social supports are a crucial dimension of healthy aging. Good social supports were defined as being closely connected with wives, children, siblings, playmates (e.g., bridge and golf), a religious group, social networks (e.g., clubs and civic organizations), and confidantes. Two independent raters made these judgments by reviewing at least 10 questionnaires—including those from wives and children—and usually at least one 2-hour interview (Vaillant et al., 1998). This variable was not available for the Inner-City sample. A score of 10.5 to 14.0 reflected social supports in the worst quartile.

6. Subjective life satisfaction (range 10 to 40): The study developed a scale to quantify joy—a subjective life satisfaction scale to measure this sixth dimension of healthy aging. Nine facets of life were assessed on two consecutive questionnaires. Each item was rated over the past 20 years as to how the men regarded their marriage, for example, as highly satisfying (2.0 points), generally satisfying (1.5 points), somewhat satisfying (1.0 points), not very satisfying (0.5 points), not at all satisfying, or “does not apply to my life” (0 points). The same question was asked for income-producing work, children, friendships, hobbies, community service activities, religion, recreation, and other. The score was the total of the four underlined items plus the most satisfying score from the other five. To meet criteria for being among the Happy-Well on the last two biennial questionnaires, a study member needed to regard at least two of the five activities selected as “very satisfying” or have a total score of 7.0 or more.

Sometimes, evidence for enjoyment of life was utterly unambiguous. For example, as a means of describing his life, an Inner-City man marked four facets as “very satisfying.” He marked three additional facets—friendship, social contacts, and recreation/sports—“very satisfying” with two checks. Among the nine facets,
he only exception was his marriage. Here, rather than check an answer, he wrote, "hard to answer as I have been divorced a long time, but I have a super relationship with my ex-wife." He then ad-libbed, "I just love being with people and family and helping them when needed as well as traveling and having the health and enough money to be satisfied." Positive psychology happens.

A RESEARCH DEFINITION OF HEALTHY AGING

Each of the six dimensions of aging was significantly associated with all others—roughly as strongly as height correlates with weight. Of the 237 College men active in the study, 62 men were categorized as Happy-Well. These were men who had experienced, objectively and subjectively, biologically and psychologically good health in all six dimensions. Such Happy-Well men could be defined as follows: Before age 80, they spent no years physically disabled—either objectively or subjectively. In addition, compared to their peers in the study, their social supports were in the top three-quarters; their mental health was in the top three-quarters, and their life satisfaction was in the top two-thirds.

Forty of the 237 men were classified Sad-Sick. These were men who by age 80 had experienced at least five years of subjective or objective physical disability. In addition, all of these 40 Sad-Sick men were classified as psychosocially unhappy in at least one of the three psychosocial dimensions: mental health, social support, or life satisfaction.

Sixty of the 237 men died after age 50 and before age 75. They were classified as Prematurely Dead. We often think of death, especially premature death, as an act of God—a tumor striking down the innocent in the flower of youth. (This was one reason that the 12 deaths from the College sample before 50 were excluded: 6 men were killed in action in World War II and the others in freak accidents or from rare genetic illnesses.) There were other early deaths even more senseless and tragic, but these deaths were the exceptions. That is, before death, the 60 College men who died prematurely (i.e., after 50 and before age 75) were almost as psychosocially impaired as the surviving Sad-Sick men. Before death, all but 18 of these 60 men had suffered poor social supports or poor mental health or were dissatisfied with their lives.

I followed the same procedure for categorizing the health of the 332 participating Inner-City men who survived past 50 and for whom the study had complete records. In contrast to the College sample, half of the 44 early (i.e., before age 50) deaths were due to some form of self-neglect. At ages 65 to 70, there were 95 Happy-Well, 114 Intermediate, 48 Sad-Sick, and 75 Prematurely Dead by age 65. Although the proportions of Inner-City men in each outcome category were almost identical to the College men, it should be noted that the Inner-City men were 10 years younger.

CLINICAL EXAMPLES

I hope the life stories of Alfred Paine and Richard Luckey, who introduced this chapter, make my operational definitions of the Happy-Well and the Sad-Sick come alive, so that the concept of positive aging becomes more than mere platitude or value judgment. (Names and identifying details have been altered to protect anonymity.)
The ancestors of Alfred Paine had been successful New England clipper ship captains. All his grandparents had graduated from high school. One grandfather became a merchant banker, and the other, president of the New York Stock Exchange. His father had graduated from Harvard, and his mother, from a fashionable boarding school. From childhood on, however, Paine was the unlucky owner of a handsome trust fund—unlucky because of how he obtained it.

When Alfred Paine was only 2 weeks old, his mother died from the complications of childbirth. When he was only 2 years old, his father died, too. So it was that the orphaned Paine became an heir. As an only child, Paine was bottle-fed by a variety of surrogates and raised by his grandmother and aunt. They were old and did not enjoy the challenge of dealing with an energetic young boy who was also a head-banger. In adolescence, Paine was a lone wolf.

In college, Alfred Paine was often in love. But it appeared to the study staff that, for Paine, being in love meant having someone to care for him. His multiple marriages were all unhappy—in part, because of the alcoholism that he maintained that he did not have and, in part, because he was frightened of intimacy. At 50, Paine answered “true” to the statement, “Sexually most people are animals” and “I would have preferred an asexual marriage.” But he did not complain. Thus, of his second marriage he could write, “I have doubts about the real value of marriage... the state of my own marriage, which is excellent, has nothing to do with my philosophizing.” But his “excellent” marriage soon ended in divorce. Positive psychology must be assessed by what people do, not what they say. In old age, Paine’s third wife was protective and loving toward him. In return, he was disrespectful and uncaring toward her. Before he died, I asked how Paine and his wife collaborated. He replied, “We don’t. We lead separate lives.”

At 47, Alfred Paine recalled the ages from 1 to 13 as the unhappiest in his life. At age 70, Paine changed his story and believed that the ages from 20 to 30 were the unhappiest. But there had never been a time that Paine was happy. It was only that Paine, as I have suggested, was not a complainer. He had never sought psychotherapy, and none of his doctors ever called him mentally ill. Early on, however, his wife volunteered, “I wish he’d be analyzed not only for our sex life but for his ulcer and to give me someone to talk to.”

Subjectively, Paine described his own physical health as excellent; objectively, his health was anything but. In fact, by age 68 he was seriously overweight, afflicted by hypertension and gout, and he suffered from obstructive pulmonary disease—the result of lifelong smoking. On paper, he could sound assertive. For example, in 1947, he favored a preventive war with Russia, “Let’s go all out and get it done”; and during the Vietnam War, he was in favor of using hydrogen bombs. But his occupational life documented his real life timidity. “Security was the brightest part of my job,” he confided. “I haven’t the guts to go out on my own as a man of the world.”

When I interviewed Paine at 73, he appeared to me like an old man in a nursing home. Both his kidneys and his liver were failing; and he was cursed with a mild dementia, the result of a drunken automobile accident. He was at least 30 pounds overweight and looked 10 years older than his age. There was no question that he was physically disabled. He was the only College man in the study to have lost all his teeth.

Although he had made a good living in middle management over the years, Paine’s handsome trust fund had evaporated; and his pension had eroded through
multiple divorces and tax troubles. His house looked as if furnished from yard sales. The only exception was the elegant Cantonese porcelain umbrella stand that stood guard by the front door, in mute testimony to the fact that his New England ancestors had waxed rich in the China clipper trade. Little other than television now absorbed Paine. He rarely left his sofa. At no time in his life had he ever had hobbies or learned to play.

Alone of all the men who returned the age 75 questionnaire, Paine refused to answer the part that dealt with life enjoyment. Thus, his unacknowledged lack of joy in life could be inferred from his behavior. Over the past 20 years, there was no area of his life, other than his religious activities, in which he had expressed satisfaction. Admittedly, in questionnaires, he said nice things about his children, but during the interview when I asked him what he had learned from them, he responded irritably, "Nothing. I hardly see my children. They hardly let me see my grandchildren." Turning to questionnaires from his children, one daughter saw him only every three years; one daughter saw him once a year and viewed her father as having "lived an emotionally starved life," and at age 35, Alfred Paine's only son believed that he had never been close to his father.

In terms of social supports, Paine, orphaned at 2, had no siblings, and he was close to no relative. Since the age of 50, he had engaged in no pastimes with friends. When I asked him at 73 to describe his oldest friend, he growled, "I don't have any." He rarely talked to anybody on the telephone. His only confidante was, occasionally, his wife.

Only Paine's religious affiliation was strong. He was proud that he was a committed Episcopalian, and he went on religious retreats, which brought him real satisfaction. Sadly, although these retreats reflected the only social network he possessed, after age 72 he could no longer afford to go on them. Paine could not care for his teeth, his money, or his soul.

At age 73, Paine could climb stairs only with difficulty. He had great difficulty walking even 100 yards; he was unable to drive at night, and he had to give up golf because of his gout. On his last questionnaire, in a shaky hand, Paine, age 75, referred to his general health as "very good" and reported that he had no difficulty in physical activities. Both his wife and his doctor, however, saw him as seriously impaired. The very next year, Paine was placed in a nursing home; a year later, he died from his multiple illnesses. (For research purposes, Paine was classified with the Sad-Sick rather than with the Prematurely Dead because he survived past his 75th birthday.)

Having followed the easy path and described negative aging, I next describe positive aging. Richard Luckey tells a different story. At 70, when looked at through the eyes of their internists, Richard Luckey's objective physical health had seemed actually worse than Alfred Paine's. Luckey had high blood pressure, atrial fibrillation, a cardiac pacemaker, pancreatitis, and was "status post-back surgery." He was even more overweight than Paine. On the basis of all this, the study internist classified the 70-year-old Luckey disabled. But being ill is very different from feeling sick. Truth is revealed through follow-up.

From age 70 to 80, Paine sickened unto death, while Luckey's health only got better. Luckey not only said his health was excellent but, by age 75, his objective health could no longer be classified by the study internist as disabling. Luckey had completely recovered from his pancreatitis. His "status post-back surgery"—which
loomed so ominously to the study internist when Luckey was 70—turned out to have been 30 years in the past. Indeed, at age 76, Luckey spent two months downhill skiing in Vail. True, he still wore a pacemaker, and, true, his blood pressure remained high. But in his doctor’s words—not just his own—“Mr. Luckey continues to enjoy relatively good health...he continues to be active physically and also mentally. He is now writing a book on the Civil War.” As Luckey himself expressed it, “I have done less chain sawing, but I still split wood.”

Another crucial difference between Paine and Luckey was that Luckey had friends with whom he exercised regularly. In addition, he had never smoked, and he used alcohol in moderation. But, as the song suggests, it is easier to “button up your overcoat” and “take good care of yourself” if you belong to someone, and Luckey had always enjoyed social supports. At the risk of oversimplification, Richard Luckey’s mother had loved him as a child; and a half century later, “Almost everything we do,” he trumpeted, “is family oriented. We have practically no social calendar.” His wife amplified, “We rarely go out, but we will have groups for supper such as the church fellowship group or the basketball team for a weekend of skiing or a vestry meeting at the house.” Without a social calendar, Luckey was also commodore of his distinguished West Coast yacht club. Actions speak louder than pencil-and-paper questionnaires—a fact that future research workers in positive psychology must learn to embrace.

In its efforts to define positive aging, the study asked each man to describe his relative satisfaction over the past 20 years with eight different facets of living. Remember, Alfred Paine had chosen to leave that part of his biennial questionnaire blank. In contrast, Richard Luckey described not only his hobbies, his religion, and his income-producing work as “very satisfying,” but, more important, he experienced his relationships with his wife and with his children as “very satisfying.” His wife and children’s questionnaires revealed a similar satisfaction with him. Luckey’s daughter had described her parents’ marriage as “better than my friends”; then, for good measure, she had added two pluses. Luckey’s wife gave her marriage a “9” out of “9” and, clearly, the marriage had worked even better for her husband. Luckey was close to his brother with whom he skied regularly in the winter and fished regularly in the summer. He stayed in very close touch with, and took great pleasure from, his children and grandchildren. His recreational activities included active involvement not only with his brother and children but also with the other sailors of his yacht squadron. Subjectively, Luckey perceived himself with relatively few close friends and would have liked more. Objectively, his friendship network was very rich.

It was so easy for Luckey to take in, to “metabolize,” any love that he was offered. When he was 60, he wrote of his father, who had died 20 years before, “I have never completely gotten over Dad’s death. I will always remember him as the finest man I ever knew.”

Wondering how the Luckeys still played together while the Paines led “parallel lives,” I asked how his marriage had lasted for 40 years. With Churchillian simplicity, Luckey replied, “I really love Chrissie and she loves me. I really respect her, highly esteem her, and she is a real person.” On her recent questionnaire, Chrissie wrote the study, “My husband is my best friend; I like looking after him. We have grown closer and fonder every year.” There were 50 years of stable marriage to back up their words. In 1970, Luckey and his wife had sailed
by themselves from San Francisco to Bali. The trip led to many months of close cooperation and shared physical labor. On the journey, Luckey illustrated his sailing journal with his own watercolors.

All during his 15 years, Luckey had loved writing and painting for fun. At 77, he had put on a solo exhibition of his marine watercolors. "With painting," he added dreamily, "You forget everything, and that is why it is so very relaxing." In church, Luckey sang both solo and in the choir. "I don't have a day when I don't have something to do that I want to do... creativity is absolutely necessary for someone to be healthy." Ten years before, with no more intelligence than Paine, Luckey, at age 67, told the study that he had "just finished a screen play and sent it to a literary agent." No, it was never performed, and, to my knowledge, his book on the Civil War is still unpublished. But as Luckey had written to the study at age 70, "I am living in the present—enjoying life and good health while it lasts, I think very little about the past or future, and I don't take myself very seriously."

THE PREDICTORS OF HEALTHY AGING

To many, it seems as if heart attacks and cancer are visitations from malicious fate and that much of the pain of old age seems in the hands of a cruel god—or at least of cruel genes. The whole process of growing old sometimes feels completely out of our control. In addition, there is much data well represented by "The Whitehall II Study" (Marmot et al., 1991), which emphasizes the importance of social class to successful aging. But blessed with prospectively gathered data, I was astonished that fate was relatively unimportant. Much of a septuagenarian's positive aging or lack of it is determined by factors already established before age 50. What seemed even more astonishing was that these factors are more or less controllable.

Ten years ago, a leading gerontologist, Paul Baltes, acknowledged that research had not yet reached a stage where there was good causal evidence for predicting healthy aging (Baltes & Baltes, 1990, p. 18). True, there have been several distinguished 10- to 20-year prospective studies of physical aging (Baltes & Mayer, 1999; Busse & Maddox, 1988; Rowe & Kahn, 1999; Shock, 1984; Thoma, 1987). All have contributed valuable understanding about the course of old age. But none of these studies have followed their subjects for more than 25 years, and few knew what their members were like before 50. In contrast, the Study of Adult Development has illuminated predictors that at 50 could foretell whether a man would be enjoying his 70th or 80th year. I identify these predictors one by one. But first, I note variables that, surprisingly, did not predict successful aging.

SIX VARIABLES THAT DID NOT PREDICT POSITIVE AGING

Ancestral Longevity

Lacking lifetime studies of humans, scientists have studied aging in fruit flies. You can breed and study many generations of fruit flies in a year; and in the longevity of fruit flies, it appears that genes are very important. Therefore, one of the first variables the study looked at was ancestral longevity. For the College men, ancestral longevity was estimated by computing the age at death of the subjects' parents and their four grandparents. For the Inner-City men, only
the longevity of parents could be computed with accuracy. At age 60, the longevity of the ancestors of study members who died young was significantly shorter than the ancestral longevity of those who still survived. But to my surprise, by age 75, the average life spans of the ancestors of the Happy-Well and of the Sad-Sick were identical (see Table 34.2). In a replication study on 90 women who were 75 to 79 years old in the Terman Study (Vaillant, 2002), ancestral longevity was only weakly correlated with vigorous late-life adaptation. The longevity of the Inner-City men's parents contributed not at all to whether they were aging well or poorly at 70. The most likely explanation for the insignificant effect of ancestral longevity is the sheer number of genes involved. Obviously, specific genes are very important in predicting specific illnesses that shorten life; there may be other genes that facilitate longevity. But in a given individual, there may be so many good and bad longevity genes that ancestral effects tend to average out.

**Cholesterol**

Everyone worries about cholesterol, especially in popular magazines. But these magazines would lose valuable advertising revenues if they chose to worry their readers about really significant risks to health—such as smoking and alcohol abuse. It is perfectly true that for young men or for those who have already had a heart attack, lowering high cholesterol is beneficial. It was equally true, however, that cholesterol levels at age 50 did not distinguish the Happy-Well from the Sad-Sick or even from the Prematurely Dead (see Table 34.2). This finding has been confirmed by much larger, more representative studies (Krumholz et al., 1994).

**Table 34.2**

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<th>Variables (Range)</th>
<th>Physical Health</th>
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<td>Successful Aging</td>
<td>Mean Number of Years</td>
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<td></td>
<td>College/</td>
<td>Disabled &lt;80/70</td>
</tr>
<tr>
<td></td>
<td>Inner-City</td>
<td>0-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dead &lt;75/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dead &lt;65/</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0-1</td>
</tr>
<tr>
<td>“Fate” (Ages 10-49)</td>
<td>.15/ns</td>
<td>.16/.01</td>
</tr>
<tr>
<td>Ancestral longevity (40-100)</td>
<td>ns/ns</td>
<td>ns/ns</td>
</tr>
<tr>
<td>Cholesterol mg/100 ml</td>
<td>ns/ns</td>
<td>ns/ns</td>
</tr>
<tr>
<td>Parental social class (1-5)</td>
<td>ns/ns</td>
<td>ns/ns</td>
</tr>
<tr>
<td>Warm childhood environment</td>
<td>.18/ns</td>
<td>ns/ns</td>
</tr>
<tr>
<td>Stable childhood temperament</td>
<td>ns/ns</td>
<td>ns/ns</td>
</tr>
<tr>
<td>(1-5)</td>
<td></td>
<td>ns/.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ns/.20</td>
</tr>
</tbody>
</table>

*Notes: For all dependent and independent variables, a low score is “healthy” with the exception of ancestral longevity. All values and variables (if different) for the two samples are presented as College/Inner-City. n = 237 (College sample); n = 332 (Inner-City sample); ns = Not significant; otherwise, all correlations p < .05, but p > .01; Spearman rho (two-tailed) used throughout.*
Parental Social Class

Interest in the importance of social class and mental health has been fostered by many studies showing the strong cross-sectional association between job prestige and social class with physical health. But in our prospective study, parental social class was unassociated with late-life physical health. For example, at age 47, the social class of the Inner-City men (I = upperclass, V = underclass; Hollingshead & Redlich, 1958) was powerfully associated with physical health at age 70. Forty percent of the men in classes I through III were still not dead or disabled, and 37% fell in the Happy-Well. In contrast, only 9% of the men in Class V were not disabled, and only 3% were among the Happy-Well. But the relationship was not causal. Rather, both poor social class and poor health were a function of alcohol abuse, mental illness, and poor education. However, there was no significant correlation between parental social class of the men at 14 and their health at 70 (see Table 34.2).

Warm Childhood Environment

Surprisingly, by age 70, stability of parental marriage, parental death in childhood, family cohesion, and warm childhood environment—variables important to health in young adulthood—were no longer predictive of outcome (see Table 34.2). This was true for both the College and Inner-City study cohorts. For both cohorts, two research assistants, blinded to all subsequent data, rated five facets of the men’s childhood environmental strengths (global impression, family cohesion, and relations with mother, father, and siblings) on scales from 1 to 5 (range: 5 = warmest environment, 25 = bleakest environment; Vaillant, 1974, 1995).

Stable Childhood Temperament

Likewise, stable childhood temperament (rated by parental report of childhood temperament: 1 = easy baby and toddler; 3 = minor problems; 5 = phobias, shyness, tantrums, enuresis; Vaillant, 1974, 1995) was unrelated to physical and mental health and successful aging in the College men. However, it did show a small association with mental health alone in the Inner-City men (see Table 34.2).

Stress

Stress did not appear to be an important predictor. Many believe that stress or multiple physical symptoms secondary to stress are detrimental to health. For the psychologically minded, an attractive contrarian hypothesis is that men who “hold stress in” age poorly. Neither of these hypotheses was supported by the study data. The number of physical symptoms under stress before age 50 did not correlate with physical health at age 75. The number of illnesses, thought by some to be psychosomatic, such as ulcers, asthma, and colitis that the men had endured between 20 and 65, did not affect physical health at age 75. The number of serious negative life events before 65 did not predict physical health at 75 (Cui & Vaillant, 1996). Over the short term, stress can seriously affect health, but over the long term, how you deal with stress seems more important.
SEVEN FACTORS THAT DID PREDICT
POSITIVE AGING

Table 34.3 illustrates the factors that did predict positive aging. Five factors assessed prior to age 50 did predict healthy aging for both cohorts. A sixth protective factor, education, was important to aging well for both Inner-City men but was not really applicable to the College cohort, whose education was too homogeneous to be a differential predictor. A seventh independent predictor, exercise, was available for the College men but not for the Inner-City men. The univariate importance of these predictors is illustrated in Table 34.3, but each variable was important to positive aging when the others were controlled (Vaillant, 2002).

NOT BEING A SMOKER OR STOPPING SMOKING YOUNG

Smoking was calculated in pack-years (packs per day × years smoking) by age 50. In both male cohorts, not being a heavy smoker before the age of 50 was the most important single predictive factor of healthy physical aging. Among the College men, heavy smoking (more than a pack a day for 30 years) was 10 times more frequent among the Prematurely Dead than among the Happy-Well. Yet, if a man had stopped smoking by about age 45, the effects of smoking (as much as one pack a day for 20 years) could no longer be discerned at 70 or 80.

ADAPTIVE COPING STYLE (MATURE DEFENSES)

The second most powerful predictor of positive aging among the Happy-Well was an adaptive involuntary coping style. Independent raters—blinded to the men’s current physical health and ignorant of their future—had reviewed each individual’s entire record to rate his defenses. An adaptive coping style is referred to as the use of mature defenses. For each man, the mean maturity of defensive behaviors,

| Table 34.3 |
| Correlation of Relatively Controllable < Age 50 Predictors with Five Outcomes of Positive Aging 15 to 25 Years Later |

<table>
<thead>
<tr>
<th>Successful Aging College/Inner-City</th>
<th>Physical Health Length of Active Life</th>
<th>Mental Health Subjective Satisfaction Objective College/Inner-City</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>College/Inner-City</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1–4</td>
<td>0–40</td>
</tr>
<tr>
<td>Pack-years of smoking (0–90)</td>
<td>.35/.31</td>
<td>.30/.31</td>
</tr>
<tr>
<td>Maturity of defenses (1–9)</td>
<td>.32/.23</td>
<td>.27/.17</td>
</tr>
<tr>
<td>Alcohol abuse (DSM-III) (1–3)</td>
<td>.42/.19</td>
<td>.38/.18</td>
</tr>
<tr>
<td>Healthy weight (1–2)</td>
<td>.14/.11</td>
<td>.14/ns</td>
</tr>
<tr>
<td>Exercise (1–2)/education (6–19)</td>
<td>.22/.20</td>
<td>.18/.20</td>
</tr>
<tr>
<td>Stable marriage (1–2)</td>
<td>.27/.22</td>
<td>.15/.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: For all dependent and independent variables, a low score is “healthy.” All values and variables (if different) for the two samples are presented as College/Inner-City.

n = 237 (College sample); n = 332 (Inner-City sample); ns = Not significant; unbold correlations p < .05; bold correlations p < .001; Spearman rho (two-tailed) used throughout.
largely identified from the age of 47 (SD 2 years), were scored on a nine-point scale consistent with the DSM-IV Defensive Functioning Scale (American Psychiatric Association [APA], 1994): 1 = most adaptive, 9 = most maladaptive. In everyday life, the term mature defenses refers to our capacity to turn lemons into lemonade and not to turn molehills into mountains. Analogous to immune and clotting mechanisms, the choice of defense mechanisms is relatively involuntary. The term *mature* refers to the fact that when adults are followed over 60 years (Vaillant, 1977; Vaillant & Mukamal, 2001), immature coping styles of passive aggression, dissociation, projection, and acting out decline, and the coping styles of altruism, sublimation, suppression (stoicism), and humor increase. In both samples, mature defenses were common among the Happy-Well and virtually absent among the Sad-Sick. This strong association resulted because mature defenses at 50 predicted mental health in older age. Mature defenses did not predict the men’s future objective physical health, but mature defenses often did keep objectively disabled men from feeling subjectively disabled.

**Absence of Alcohol Abuse**

*DSM-III* criteria (APA, 1980) were used to assess alcohol abuse (scored 1 = no abuse; 2 = alcohol abuse, 3 = alcohol dependence). Absence of alcohol abuse was the only protective factor in this study that powerfully predicted both psychosocial and physical health. Alcohol abuse was defined as the evidence of multiple alcohol-related problems (with spouse, family, employer, law, and health). Until now, most major longitudinal studies of health, for example, The Framingham Study (Dawber, 1980) in Massachusetts and the Marmot et al. (1991) Whitehall studies in England, have controlled only for reported alcohol *consumption*, not abuse. Unfortunately, reported alcohol consumption reflects alcohol abuse (loss of voluntary control and/or adverse consequences from alcohol abuse) almost as poorly as reported food consumption reflects obesity. Neither reported alcohol nor calorie consumption is a useful predictor of poor aging, while obesity and symptomatic alcohol abuse are.

Prospective studies reveal that alcohol abuse is a *cause*—not a result—of increased life stress (Cui & Vaillant, 1996), of depression (Vaillant, 1995), and of downward social mobility. In addition, alcohol abuse causes death for many reasons other than liver cirrhosis and motor vehicle accidents. Alcohol abuse causes suicide, homicide, cancer, heart disease, and a depressed immune system. Indeed, alcohol abuse was almost as bad for health in nonsmokers as heavy smoking was bad for health among social drinkers (Vaillant, Schnurr, Baron, & Gerber, 1991).

**Healthy Weight**

Healthy weight was measured by the body-mass index (BMI; kg/m2): At age 50, men with a BMI >28 (overweight) or a BMI <22 (underweight) = 2; men with BMI <29 and >21 (healthy weight) = 1.

**Stable Marriage**

Stable marriage was defined as 1 = married without divorce, separation, or serious problems until age 50; otherwise = 2.
EXERCISE

Exercise (recorded for College men only), defined as exercise that burned more than 500 kilocalories per week, was classified as regular exercise (Schnurr, Vaillant, & Vaillant, 1990). Less than 500 kilocalories of exercise a week was recorded as exercise absent.

YEARS OF EDUCATION

Years of education was a continuous variable from 6 to 19. Because the range of education for the College men was truncated, education was used as a predictor for Inner-City men only. For the Inner-City men, years of education were an important protective variable. Although length of education is often viewed as merely a manifestation of social class and intelligence, its association with healthy aging depended on neither of these factors. The components of education that appeared to correlate with physical health in old age were self-care, future orientation, and perseverance—not IQ and paternal income. The effect of education on health was indirect. The more education the Inner-City men obtained, the more likely they were to stop smoking, eat sensibly, and use alcohol in moderation. Thus, a major reason that the health of the Inner-City men declined so much more rapidly than the College men was that the Inner-City men not only were much less educated but also led far less healthy lifestyles. The Inner-City men were almost twice as likely as the College men to abuse alcohol and cigarettes, and they were more than three times as likely to be overweight. In Table 34.4, the contrast in physical health between the Inner-City men who did not attend college and the College men who attended graduate school is dramatic.

A crucial piece of evidence supports the fact that education predicts positive aging for reasons independent of parental social class and intelligence. True, the physical health of the 70-year-old Inner-City men was as poor as that of the College men at 80. But remarkably, the health of the college-educated Inner-City men at 70

<table>
<thead>
<tr>
<th>Table 34.4</th>
<th>The Relation of Health at Age 70 to Years of Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Education of Men (Years)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inner-City</td>
</tr>
<tr>
<td></td>
<td>&lt;16</td>
</tr>
<tr>
<td></td>
<td>n=302</td>
</tr>
<tr>
<td>Health</td>
<td>(%)</td>
</tr>
<tr>
<td>Excellent</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>7</td>
</tr>
<tr>
<td>Chronic illness</td>
<td>20</td>
</tr>
<tr>
<td>Disabled</td>
<td>22</td>
</tr>
<tr>
<td>Dead</td>
<td>51</td>
</tr>
</tbody>
</table>

a Three men attended graduate school.
b Four men did not yet have health rated at age 70.
c Three men were excluded because they did not graduate.
Table 34.5
Contrast of the Social Class of College Men and Inner-City Men with 16 Years of Education

<table>
<thead>
<tr>
<th></th>
<th>Inner-City Men</th>
<th>College Men</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n = 30 )</td>
<td>( n = 78 )</td>
</tr>
<tr>
<td>IQ</td>
<td>104 ± 11</td>
<td>133 ± 12</td>
</tr>
<tr>
<td>Height</td>
<td>69.6 ± 2.3</td>
<td>70.8 ± 2.4</td>
</tr>
<tr>
<td>Parental social class I or II</td>
<td>0%</td>
<td>68%</td>
</tr>
<tr>
<td>Income at age 47</td>
<td>27K ± 5K</td>
<td>63K ± 57K</td>
</tr>
<tr>
<td>Social class at age 47</td>
<td>20%</td>
<td>37%</td>
</tr>
</tbody>
</table>

was as good as that of the College (Harvard) men at 70 (see Table 34.4). This was in spite of the fact that the college-educated Inner-City men’s childhood social class, their tested IQ, their income at age 47, and the prestige of their colleges and jobs were markedly inferior to the College (Harvard) men (see Table 34.5). Parity of education alone was enough to produce parity in physical health.

CONCLUSION

The protective factors in Table 34.3—a stable marriage, the ability to make lemonade from lemons, avoiding cigarettes, modest use of alcohol, regular exercise, persevering with education, and maintaining normal weight—allow us to predict positive health 30 years in the future.

Sixty-six College men—still in good health at age 50—possessed less than four protective factors. At age 80, not one—not a single one—of these men was among the Happy-Well; and 21, or almost a third, were among the Sad-Sick, and three times as many as expected were dead. All 7 men who, like Alfred Paine, had less than two protective factors at age 50, were dead by age 80. In contrast, 44 College men had all six factors present; 25 were among the Happy-Well, and only 1 was among the Sad-Sick.

Although the average Inner-City man at age 50 tended to have fewer protective factors than the College men, the power of these protective factors was the same. For example, there were 52 Inner-City men who at age 50 enjoyed both good health and five or more protective factors. Twenty years later, only 2% of such men were among the Sad-Sick or Dead, and 33 were among the Happy-Well. There were 37 Inner-City men who were not disabled at age 50 but who possessed less than two protective factors. At 70, 25 were among the Sad-Sick or Prematurely Dead and only 3 were among the Happy-Well. In other words, positive aging to an extraordinary degree is controllable and thus teachable by positive psychology.

There are exceptions. Some people are struck by lightning; others are crippled by someone else’s stupidity or die from malignant genes. But the vast majority—at least in these two White male cohorts—of septuagenarians are products of their own, often involuntary, behavior.

The good news, however, is that most of us—if we start young and try hard—can voluntarily control our weight, our exercise, and our abuse of cigarettes—at least by the time we are 50. And with hard work and with the help of able intervention, we
can improve our relationships with our most significant other, achieve abstinence from alcohol, and use fewer maladaptive defenses. Indeed, the fellowship of Alcoholic's Anonymous offers a valuable object lesson to positive psychology. I do not wish to blame the victim, but I do wish to accentuate the positive. Whether we live to a vigorous old age lies not so much in our stars or in our genes, as in ourselves.

REFERENCES


Positive psychology is a relatively new form of psychology. It emphasizes the positive influences in a person’s life. These might include character strengths, optimistic emotions, and constructive institutions. This theory is based on the belief that happiness is derived from both emotional and mental factors. Positive psychology aims to help people identify happiness from moment to moment.

In therapy, the positive implications of each activity are explored. A common practice is the use of beepers or pagers. Therapists may, with the consent of the person receiving therapy, beep the individual to remind them to record their experiences. These records are expanded upon when a person adds daily entries to describe the details of the past day.

Positive psychology aims to broaden the focus of clinical psychology beyond suffering and its direct alleviation. Malhotra et al. have learned a great deal about the genetics of mental disorder. Very little empirical research has explored the role of positive emotions and of strengths in prevention and treatment. By focusing on bad events and innate vulnerabilities.