COGNITION, STRESS, AND AGING

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PERSONAL OPTIMISM, PHYSICAL AND MENTAL HEALTH

The Triumph of Successful Aging

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You can't be optimistic if you have a misty optic.

This chapter will examine the concept of personal optimism and its influence on the physical and mental health of the individual. Following a brief introduction of behavioral health and growth models of human development, different perspectives on personal optimism and health will be evaluated. In two ensuing sections, the empirical evidence relating personal optimism to physical and mental health will be reviewed. In the final section, we shall examine the personal optimism construct in the elderly, and report on some recent studies we have conducted.

Several difficulties were faced in the development of this chapter. Foremost was the fact that very few theoretical and empirical attempts have been made to analyze concepts that *promote* physical and mental health of individuals; most of the research has focused on variables that alleviate illness or disease. Not much is known about the relationship between optimism and health in the general population; even less is known with respect to the aging population. However, despite the lack of theoretical development and empirical findings, it is generally believed

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that personal optimism is an important variable in the successful adaptation to the later years of life. For example, Palmore, Randolph, and Overholser (1979) stress four basic factors to successful aging: (1) a variety of meaningful activities; (2) good health habits; (3) sound financial planning; and (4) mental attitude–an *optimistic* outlook. Havighurst, Neugarten, and Tobin (1968) have observed that successful agers are individuals who (1) take pleasure from daily activities; (2) view life as meaningful and accept life circumstances; (3) believe they have achieved their major goals; (4) have a positive self-image; and (5) maintain happy and optimistic attitudes and moods.

BEHAVIORAL HEALTH AND GROWTH MODELS OF HUMAN DEVELOPMENT

Psychologists interested in the health field are on an exciting new frontier of interdisciplinary collaboration in the scientific exploration of health-behavior relationships. At the first anniversary of the newly formed division of Health Psychology within the American Psychological Association, Matarazzo (1980) described the new opportunities for training, research, and practice in the fields of behavioral medicine and behavioral health. He viewed *behavioral medicine* as a broad interdisciplinary field of inquiry concerned with health and illness or related dysfunctions (e.g., hypertension, smoking, obesity, etc.). He preferred the term *behavioral health* to describe the subspecialty concerned with the maintenance of health and the prevention of illness in currently healthy persons.

The behavioral health philosophy has emerged in response to a growing realization that the traditional illness model, with emphasis on remediation, is no longer appropriate to deal with modern stress-related problems. As well, the health system is being overburdened and the cost of health services is rising at an alarming rate each year (Ryan & Travis, 1981). Health professionals, disenchanted with the medical model, were quick to respond to the challenge by proposing new preventative approaches to health, culminating in the wellness movement (Antonovsky, 1979; Ardell, 1977; Ryan & Travis, 1981). Figure 7-1 describes the essence of the wellness model. In the medical model, health is viewed as a dichotomous construct. If disease is present, one is considered ill; if it is absent, one is considered healthy. In the wellness model, health is a continuum, anchored by premature death and a high level of wellness.

A parallel progression of events is evident in the field of life-span developmental psychology. Over the past decade, we have witnessed a shift from the deficit or decrement models of human development to growth or competence models (Albee, 1980; Bond & Rosen, 1980; Butler, 1974; McCrae, 1981). Growth models of aging give greater weight to the *adaptive processes* in the later years. The theoretical orientation of Erikson (1963), the content analysis of biographical material by Buhler (1935), and the life cycle analyses of Neugarten (1979) converge in describing the adaptive processes or developmental themes across the life span. An analysis of these themes suggests that the life span can be differentiated into three broad stages, each characterized by life experiences that differ in kind and quality (see Table 7-1).

If there are age differences in human adaptation to life events, they may be

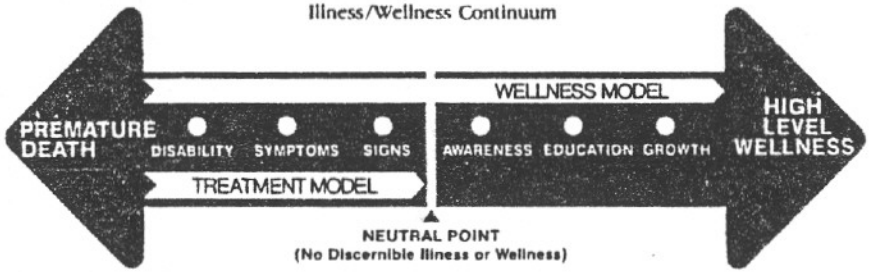

FIGURE 7-1. The Wellness Model of Health. Moving from the center to the left shows a progressively worsening state of health. Moving to the right of center indicates increasing levels of health and well-being. The treatment model can bring you to the neutral point, where the symptoms of disease have been alleviated. The wellness model, which can be utilized at any point, directs you beyond neutral, and encourages you to move as far to the right as possible. It is not meant to replace the treatment model on the left side of the continuum, but to work in harmony with it. If you are ill, then treatment is important, but don't stop there. [From *The Wellness Workbook* by Regina Sara Ryan & John W. Travis, M.D. Copyright © 1981. Used with permission. Available from Ten Speed Press, P.O. Box 7123, Berkeley, CA 94707.]

a function of differences in the kind and quality of experiences encountered at different times during the life span rather than due simply to the passage of time. The values and goals of one stage of life may become dysfunctional at another, necessitating some reorientation. The specific set of properties that govern changes during childhood and adolescence (e.g., biological-maturational growth) are different from the properties that govern change during adulthood and the later years (Ager, White, Mayberry, Crist, & Conrad, 1981-82; Flavell, 1970; Lowenthal, Thurnher, Chiriboga, & Associates, 1975). The monumental work of Lowenthal and her associates (1975) contributes much to our understanding of adaptational patterns at successive transition points in the life cycle. Baltes and Nesselroade (1979) have pointed out that nonnormative events, that is, events which do not follow a biological-maturational sequence such as illnesses, losses, marital disruptions, relocation, etc., become increasingly important later in the life span. Neugarten (1979) described the aging process as a "continually changing sense of self

TABLE 7-1 Stage of Life and Kind and Quality of Experience

STAGE	KIND AND QUALITY OF EXPERIENCE
Youth and young adulthood	Sensing, perceiving, feeling; skill acquisition; planning, developing, and testing life goals
Adulthood	Crystallization of goals; self-review of life goals; reassessment of lifestyles
Maturity	Integration, interpretation; reflection, anticipation; meaning and purpose of existence; life review; value reorientation

and a changing set of adaptations. With the passage of time, life becomes more, not less, complex; it becomes enriched, not impoverished" (p. 891).

The behavioral health approach and the growth models of life-span developmental psychology combine to provide direction to understanding the adaptive processes in the later years. Our investigation of the role of personal optimism in the health of older adults reflects the influence of these two current trends.

THEORETICAL, CONCEPTUAL, AND MEASUREMENT PERSPECTIVES

In humans, the cortex has the potential to exert complete control over the more primitive subcortex (Simeons, 1960). The ability of humans to self-reflect, to abstract, and to represent the environment symbolically has given them the power to modulate subcortical processes at the conscious level. As a result, humanity has acquired tremendous flexibility in interpreting biologically based reactions to stressful events. Such flexibility, however, can be a double-edged sword. Henry (1981) expressed the potential consequences of such flexibility when he wrote:

> The enormous complexity of human society and man's capacity through his symbol system to identify with more powerful beings--gods or chosen leaders or institutions--give him a certain invulnerability to limbic system arousal as long as he perceives himself to be socially supported here or in the hereafter. But, if as the result of early or late experience or a combination of both, he comes to perceive himself as helpless and lacking in power to control his fate, he may well become more vulnerable than an animal whose associational cortex is more limited. (p. 33)

The ability of humans to utilize symbol systems gives them the capacity to experience a wide range of emotions, such as pity, shame, guilt, hope, or optimism. It allows them to transcend the time boundaries of past, present, and future; to hold future expectations; and to give meaning to existence. Indeed, personal optimism can be considered as a "cortical elaboration" of the visceral brain (Pelletier, 1977).

The Construct of Personal Optimism

The construct of personal optimism has been most closely associated and used interchangeably with the construct of hope. It can be classified under the general heading of attitudes toward the future which also includes the concepts of future orientation, future expectation, and future time perspective.

A number of psychologists have attempted to develop a theoretical framework for the construct of hope or personal optimism. Lewin (1948) theorized about the importance of time perspective:

> The life-span of an individual, far from being limited to what he considers the present situation, includes the future, the present and also the past. Actions, emotions, and certainly the morale of an individual at any instant depend on his total time perspective. (p. 104)

The extension into future time is referred to by Lewin as the "psychological future." Hope is defined as the expectation that "sometime in the future, the real situation will be changed so that it will equal my wishes." Lewin cautions that the psychological future seldom corresponds to what actually happens later. The individual may engage in unrealistic optimism, vacillating between the extremes of hope and despair. However, "regardless of whether the individual's picture of the future is correct or incorrect at a given time, this picture deeply affects the mood and the action of the individual at that time" (p. 104). Persistence and level of aspiration depend on the value of goals and expectations of goal attainment—both considered key components of personal optimism.

Erikson (1980) places the construct of hope within his psychosocial theory of human development. Hope is based on a sense of trust (an attitude toward oneself and the world) developed during the trust-mistrust stage prior to the first year of life. For Erikson, trust implies confidence that one can cope with urges within oneself and that one can rely on the sameness and continuity of the caretaker. Successful resolution of the conflict at the trust-mistrust stage produces a sense of trust and favorable expectations of new experiences; unsuccessful resolution produces a sense of mistrust and fearful apprehension of future situations (Maier, 1969).

Farber (1967) views hope as jointly determined by personality make-up and situational demands. The critical personality factor is a sense of competence; the situational demand is the degree of threat leveled against the individual in a given culture. Examples of threats include loss of a loved one, loss of status, and the ravages of a disease. The relationship between a sense of competence and threat is described by a ratio function:

$$\text{Hope} = f(C/T)$$

where C = sense of competence and T = threat on a social-psychological scale of threats for a given culture, objectively determined.

Thus, the higher the sense of competence relative to a given threat, the greater the sense of hope. In addition, given a stable sense of competence, hope can vary in direct proportion to the degree of threat. Thus hope is a domain-specific construct.

In the tradition of learning theory, Mowrer (1960) equates hope with the goal event of reward and conceptualizes the mechanism of hope in terms of conditioned goal anticipatory responses, such as salivation when food is used as reward. Hope, then, may be objectively defined by various parameters of reinforcement. For example, the higher the percentage of reward, the greater the hope. The behavioral manifestation of hope is the vigor or persistence of behavior directed toward the goal event.

However, in the context of studying how organisms cope with prolonged frustration, Wong (in press) has found that goal persistence is also dependent on the availability of instrumental options. Wong has observed that for both humans and rats, the more instrumental opportunities, the greater the goal persistence, even when reinforcement parameters are kept constant. For example, given the same reinforcement history, organisms will persist longer when there are many routes leading to the goalbox than when only one route is available. By the same token, an individual should be more hopeful of achieving desired goals in life, when he or she has more instrumental options. Thus, hope may be operationally defined

by the number of available alternative instrumental responses to achieve the desired goals.

In the context of developing a two-dimensional model of locus of control, Wong and Sproule (1983) argue that one's expectancy of success or hope is jointly determined by internal control and external control. An individual should have the maximum expectancy of success, when there is a high degree of internal control (in terms of competence and instrumental options) and a high degree of external control (in terms of help and support from powerful others). In other words, hope depends on both internal and external resources.

Tiger (1979), who is an anthropologist, prefers the term *optimism* to describe "a mood or attitude associated with an expectation about the social or material future—one which the evaluator regards as socially desirable, to his advantage or for his pleasure" (p. 18). For Tiger, optimism is a complex construct. It is a situation-specific state and depends on what the perceiver regards as desirable. It is also highly personal. "In essence there can be no objectively obvious optimism. It is always subjective and exists in the context of an individual's purposes as it is described or assumed by the individual" (p. 18).

Tiger argues that the role of man as a hunter-gatherer, the development of a large cerebral cortex, and the increasing complexity of social organization gives an evolutionary advantage to those who think things through, make plans, and look ahead into the future. "For social as well as economic and ecological reasons, it became useful, if not essential, to employ symbolic skills for evaluating the future" (p. 21). Thus, optimism is considered as necessary to survival as air (Tiger, 1979).

To date, Stotland (1969) has provided the most comprehensive theoretical perspective on the psychology of hope. Stotland attempts to imbed the hope construct within the experimental psychology tradition, particularly expectancy theory. He defined hope as "an expectation greater than zero of achieving a goal. The degree of hopefulness is the level of this expectation or the person's perceived probability of achieving a goal" (p. 2).

Stotland proposes seven propositions from which a number of hypotheses have been formulated. Space does not allow for a full discussion of the theory and the empirical evidence cited in support of it. Suffice it to say that the proposition that a sense of hope is a prerequisite for action is crucial to understanding the relationship between hope and health-related behaviors.

Henderson (1977) discusses hope at two levels. At level one, hope is "the expectation of something positive in the future." Hope at this level refers only to future direction. At the second level, hope is viewed as the "cognitive process of thrusting the past into the future." In elaborating, Henderson states that expectancies of something positive are to some extent determined by positive past experiences which lead to feelings of competence and mastery and which when projected into the future provide a cognitive and emotional sense of hope.

A number of clinical investigators have focused on the negative pole of the hope construct. For example, Beck, Weissman, Lester, and Trexler (1974) developed an operational measure of hopelessness defined as a system of negative expectancies concerning oneself and one's future life. Related to hopelessness is the learned helplessness construct (Garber & Seligman, 1980; Seligman, 1975). Helplessness results from the *expectation* that the outcome is independent of an individual's response. A helpless individual is one who perceives outcomes to be uncontrollable or noncontingent.

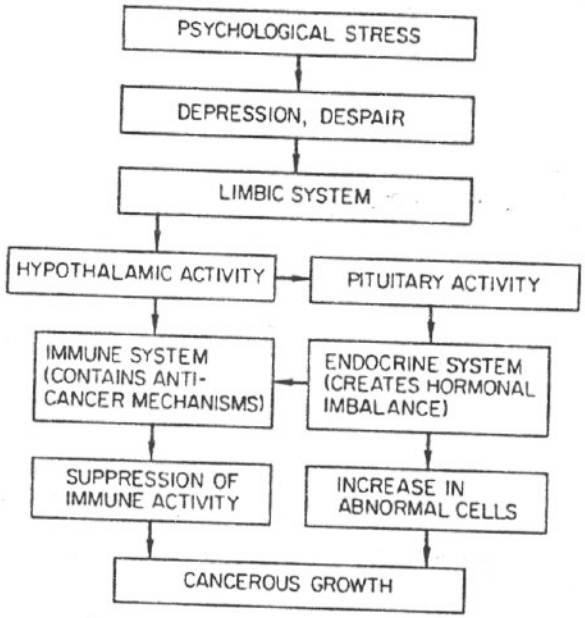

FIGURE 7-2.
A mind/body model of cancerous growth. [From *Getting Well Again* by O. Carl Simonton, M.D., Stephanie Matthews-Simonton, & James Creighton. Copyright © 1978 by O. Carl Simonton & Stephanie Matthews-Simonton. By permission of Bantam Books, Inc. All rights reserved.]

The effect of stressors on cancer development in animals has been thoroughly reviewed by Friedman, Glasgow, and Ader (1969) and by LaBarba (1970) who concluded that under certain circumstances, tumorigenicity and mortality in animals can be influenced by experimental and/or environmental manipulations. Two recent studies using mice and rats report a relationship between inescapable shock (helplessness) and tumor growth, suggesting that lack of control over stressors exacerbates cancer development (Sklar & Anisman, 1979; Visintainer, Volpicelli, & Seligman, 1982).

Before we review the available human evidence, we would like to point out that we are well aware of the methodological problems that plague the research literature in this field. The majority of the studies are retrospective in their design and are subject to retrospective contamination (Brown, 1974) and interpretative problems (for a thorough critique, see Fox, 1978). Nevertheless, the results of such studies, while not conclusive, do offer suggestions and directions for prospective and/or predictive studies on the relationship between hopelessness and cancer.

One of the earliest anecdotal accounts of a relationship between psychological states and the development of cancer was given in the second century A.D. by Galen. He is reported to have found cancer to be more frequent in "melancholic" (depressed) as opposed to "sanguine" (cheerful) women (Mettler & Mettler, 1947).

In a content analysis of the writings of the eighteenth- and nineteenth-century physicians regarding the relationship between emotions and neoplastic disease, Kowal (1955) observed a characteristic pattern in the life histories of patients prior to the development of cancer. The life situation was characterized by (1) loss of a significant figure through illness, separation, or by death; (2) frustration of significant life goals; and (3) despair and hopelessness as a reaction to loss and frustration. Kowal concluded that "out of the whole range of human emotions they all [physicians], more or less, tended to select for emphasis those which reflected despair or hopelessness as the precursor of the neoplastic state. Of this relation between despair and cancer they were convinced" (p. 227). A similar pattern was reported by LeShan and Worthington (1956) in their review of the nineteenth- and twentieth-century literature.

The work of LeShan (1966) corroborated these early observations. LeShan traced the emotional life-history pattern associated with neoplastic diseases of 450 adult cancer patients and 150 controls equated by age, sex, and social class over a 12-year period. He found a specific and typical pattern of development in 72 percent of the cancer patients and in 10 percent of the equated controls. The pattern consisted of five major phases: (1) emotional disturbance in childhood, prior to the first seven years, characterized by feelings of isolation, rejection, hopelessness, and despair; (2) poor outlet for emotional discharge as an adult but a positive cathexis to spouse, job, or children that gave meaning to life; (3) loss of the cathected object; (4) feelings of isolation, hopelessness, depression, despair; and (5) discovery of cancer at some time from 6 months to 8 years following loss of the cathected object. LeShan placed primary emphasis on the feeling of despair: "The depth and intensity of this orientation is so great that it is difficult to describe. Basically, it is bleak hopelessness about ever achieving any real feelings of meaning or enjoyment in life" (p. 783). Goldfarb, Driesen, and Cole (1967) and Simonton et al. (1978) have identified similar psychological processes that precede the onset of cancer.

Thomas, Duszynski, and Shaffer (1979) shed some light on the nature of the emotional disturbance in early adulthood as described by LeShan (1966) and LeShan and Worthington (1956). In an impressive long-term prospective study of medical students (all males), Thomas et al. observed that those who perceived the relationship to their parents as one lacking in closeness (e.g., emotional distance and detachment, active hostility) were more likely to develop cancer. The father-son relationship appeared to be the most crucial; the mother-son relationship was also important but its linkage to development of cancer was less marked.

Several studies provide support for LeShan's (1966) observations that cancer patients typically have poor emotional outlets (Bahnson & Bahnson, 1966; Greer & Morris, 1975; Kissen, 1963; Kissen, Brown, & Kissen, 1969; Morris, Greer, Pettingale, & Watson, 1981; Wirsching, Stierling, Hoffman, Weber & Wirsching, 1982). Greer and Morris conducted a carefully controlled investigation of the psychological attributes of women admitted to hospital for breast tumor biopsy. Information was obtained from patients by means of detailed structured interviews and various tests on the day before the operation, without knowledge of the provisional diagnoses. Sixty-nine patients were found to have breast cancer and 91 patients, who were diagnosed as having benign breast cancer, served as controls. No differences were found between the two groups on a large number of demographic and psychological variables. However, the two groups differed significantly with respect to emotional release—a higher proportion of the cancer patients suppressed their anger and other feelings compared to controls. These results were replicated by Morris et al. (1981). Similar results were reported by Kissen (1963) and Kissen et al. (1969) who found a more restricted outlet of emotional discharge among male lung cancer patients compared to noncancerous controls. Bahnson and Bahnson (1966) found that cancer patients tended to deny and repress conflictual impulses and emotion to a significantly higher degree than normal controls.

In a recent study of the psychological profile of breast cancer patients as-

sessed before biopsy, Wirsching et al. (1982) found that cancer patients compared to benign controls were more likely to remain aloof, suppress their emotions, rationalize, show no anxiety before the operation, show unusual altruism, avoid conflict, and to show signs of helplessness and hopelessness. This psychological profile was found in all breast cancer patients and in a quarter to a third of the patients with benign tumors. The profile led to a highly significant correct prediction of 83 percent of the cancer and 71 percent of the benign patients. Although the cancer patients were older compared to the benign controls, the age difference had no effect on the results.

A number of prospective studies linking hopelessness to the development of uterine cervical cancer in women have been reported by Schmale and Iker (1964, 1966, 1971). In one series of studies (Schmale & Iker, 1964, 1966), 51 healthy women under the age of 50 and considered equally predisposed to the disease completed an open-ended, tape-recorded interview and several psychological tests. The interview data were analyzed in terms of the extent to which feelings of hopelessness were expressed. Hopelessness was defined as "a complete sense of frustration for which the individual felt there was no solution." Cancer was *predicted*, independent of the biopsy results, as present or absent based on interview evidence of recently experienced (past 6 months) feelings of hopelessness. Of 18 women predicted to have cancer, 11 (61 percent) were actually found to have cancer; of the 33 predicted to have no cancer, 25 (76 percent) did not have cancer. These results were statistically significant. The additional predictions that cancer patients would show higher depression, lower ego strength, and lower femininity scores were not supported.

In a content analysis of the nature of the recent life events experienced by the predicted cancer versus no-cancer patients, Schmale and Iker (1966) found that while threat of loss made up the majority of the events, the threats were about equal in the two groups. Thus, it was not the life events per se, but the presence of the reported hopelessness in reaction to the experiences that differentiated the cancer from the no-cancer patients. Finally, the authors point out that the feeling of hopelessness does not predispose to cancer; it merely plays a facilitative role in an already biologically predisposed organism. These findings support earlier observations in a retrospective study conducted by Schmale (1958).

Psychological factors also play a role in the course and outcome of neoplastic disease. Greer, Morris, and Pettingale (1979) conducted a prospective 5-year study of 69 consecutive female breast cancer patients. The patients were under 70 years with no previous history of malignant disease, a breast lump less than 5 cm in diameter, and no distant metastases. Psychological responses were obtained by means of a structured interview. The responses were grouped into four mutually exclusive categories: (1) denial–active rejection of any evidence about the diagnosis, little reported emotional distress; (2) fighting spirit–a highly optimistic attitude that cancer can be beaten; (3) stoic acceptance–acknowledgment of the diagnosis, but basically ignoring it and carrying on a normal life; (4) feelings of hopelessness/helplessness–a complete engulfment by knowledge of diagnosis, preoccupation with cancer and impending death, lack of hope, obvious mental distress. The statistically significant results showed that 75 percent of the patients who were alive with no recurrence at 5 years after the operation had initially coped with denial or fighting spirit, whereas 35 percent had responded with either stoic acceptance

or helplessness/hopelessness. Furthermore, of the women who subsequently died, 88 percent reacted initially with stoic acceptance or helplessness/hopelessness. Forty-six percent of the women who were alive and well showed these emotional reactions.

Horne and Picard (1979) conducted a predictive study of 110 male patients with undiagnosed subacute x-ray lesions of the lung. Ratings were made of five subscales of psychosocial risk factors selected on the basis of previous research findings: (1) childhood instability; (2) job stability; (3) marriage stability; (4) lack of plans for the future; and (5) recent significant loss. The midpoint of the composite scale score was used to *predict* patients with benign (below midpoint) or malignant (above midpoint) disease. Actual pathological diagnosis was obtained in a follow-up review at an average 26 months after the interview. The psychosocial scale correctly predicted the diagnoses of 53 (80 percent) of the 66 patients with benign disease and 27 (61 percent) of the 44 with lung cancer. Of the five subscales, recent significant loss (past 5 years), job stability, and lack of plans for the future best predicted the actual diagnoses. Although the mean age of patients with malignancy (61.6 years) was significantly greater compared to patients with benign illness (56 years), age did not account for the association between psychosocial factors and cancer. Surprisingly, the psychosocial factors were one to two times as important as smoking history (a well-established risk factor) in predicting diagnoses of lung cancer. While the Horne and Picard study did not address itself directly to hopelessness as a precursor to cancer, the findings that patients with malignant disease suffered more from recent significant loss and planned less for the future implicate hopelessness as a contributing factor.

Taken together, the anecdotal, retrospective, and prospective studies point to four key factors that influence the initiation, propagation, and spread of cancer: (1) adverse life situations involving frustration or stress; (2) inability to cope effectively with adversity; (3) inadequate emotional outlet; and (4) a cognitive/affective response of hopelessness or despair both prior to and during the course of the disease. A similar conclusion has been reached by Kissen (1969):

> Adverse life situations in an individual with poor emotional outlets, and, therefore, with diminished ability effectively to sublimate or dissipate an emotional situation, are likely to result in such effects as depression, despair, and hopelessness. It is also possible that adverse life situations may directly precipitate such effects whatever the personality, but it must be conceded that their manifestation is more likely in those with poor emotional outlets. (p. 134)

Fox (1978) has criticized the administration of psychological tests to patients who already have the disease (whether diagnosed or undiagnosed at the time) as almost tautological. He argues that while psychological differences do exist between cancer and noncancer patients, they may be due to hormonal changes associated with the disease. To address this issue, studies are required that link particular psychological states or emotions to hormonal or immunological events.

Katz, Weiner, Gallagher, and Hellman (1970) studied the effect of psychosocial coping strategies on the psychoendocrine responses of 30 patients awaiting surgery for possible breast cancer. They found that those who coped effectively

with stress by means of faith, denial, pride, or hope had a lower corticosteroid response, while those who were anxious, dejected, hopeless or despairing had higher hydrocortisone rates.

In their mind/body model of cancer development (Figure 7-2), Simonton et al. (1978) describe the mechanism by which a psychological state of hopelessness or despair gets translated into malignant neoplastic disease. Several animal and human studies and review articles clearly suggest that psychological stress involves the central nervous system, particularly the hypothalamus, the neuroendocrine and the immunological systems in a complex network of mediating relationships (Cunningham, 1981). An organism's vulnerability to disease is heightened by means of cellular and humoral immunosuppression produced by central nervous system and hormonal activity. The link between psychological stress and the immune system has also been demonstrated through behaviorally conditioned immunosuppression, hypnosis, and hypothalamic lesions (Ader & Cohen, 1975; Gorczynski, MacRae, & Kennedy, 1982; Riley, cited in Holden, 1978; Rogers, Dubey, & Reich, 1979; Selye, 1956; Sklar & Anisman, 1981; Solomon, 1969; Southam, 1969; Stein, Schiavi, & Camerino, 1976).

In a unique prospective study, Bartrop, Luckhurst, Lazarus, Kiloh, and Penny (1977) investigated the effects of bereavement on the immune response of healthy adults. T and B cell numbers and function, and hormone assays were studied at two and six weeks after bereavement. The authors found the cell-mediated immune response to be significantly depressed in the bereaved group at six weeks compared to a hospital control group. No differences were found in T and B cell numbers and in hormone levels. Thus, a direct link was demonstrated between severe psychological distress and abnormality in immune function that was not mediated by hormone changes. It is worthwhile pointing out that loss of a significant other is typically accompanied by affective states, such as hopelessness, that consistently emerge in the psychosocial profile of cancer patients.

In summary, the evidence reviewed points to a fairly uniform pattern of antecedent psychosocial events having a direct as well as an indirect suppressive effect on the immunological system leading to cancer. More specifically, the construct of hopelessness or despair has been consistently identified as the primary affective precursor to the onset, development, and outcome of neoplastic disease. Certainly not all individuals with the psychological pattern described in this section develop cancer, and there are, no doubt, individuals without the pattern who do. However, the linkage of hopelessness or despair to cancer seems to have been established.

Several of the previously cited studies controlled for the effect of age and for a good reason because normal immune functions decline with age (Makinodan, 1977). In animals and humans, the thymic lymphatic mass decreases with age due to atrophy of the thymic cortex. Associated with involution of the thymus is a decline of circulation levels of natural antibodies and thymic hormones. Interestingly, the decline begins at sexual maturity (Makinodan), just about the time when mortality rates (the Gompertz curve) in the population begin to rise.

Infections, autoimmunity, and cancer increase as the normal immune functions decline with age. This relationship is most striking among the aged in both humans and animals (Makinodan, 1977; Teller, 1972). Immunoengineering through selective alteration of the immune system by the manipulation of diet, body temperature, drug treatment, and rejuvenation via injection of young donor immune

cells or stored autologous immune cells has the potential to reduce the severity of various diseases associated with aging (Makinodan, 1977).

At the moment, these approaches are at a very preliminary stage of development. Furthermore, they do not directly address the question of the influence of psychological states on the growth of cancer. Since the normal immune function is already declining with age, any additional immunosuppression brought on by cognitive/affective states such as hopelessness should lead to increased susceptibility to disease in the elderly. We need an approach that will focus our attention on *positive* psychological states. Do psychological factors of a positive nature increase the efficiency of the immune system? Can a change for the better in the psychological state of a cancer patient affect the development of the tumor? What is the nature of such change? What happens physiologically and biologically when psychological states are improved? The salutogenic orientation, to be presented later, will address these issues.

Hopelessness and sudden death. One of the mysteries of life is the sudden death phenomenon that cannot be explained in terms of pathological factors. Cannon (1957), in attempting to understand the so-called voodoo deaths occurring in primitive cultures, postulated that they were triggered by powerful emotional states that aroused the sympathicoadrenal system of the organism (see Newquist, Chapter 6, this volume). In a review of the literature on sudden death or disease, Goodfriend and Wolpert (1976) concluded that emotional states, particularly the state of hopelessness, precipitate a physiological response leading to sudden death. However, the specific physiological mechanisms could not be identified.

In a preliminary report on psychosocial factors and sudden death in 26 men predisposed to cardiovascular disease, Greene, Goldstein, and Moss (1972) reported that the majority of these men had been depressed for a week up to several months prior to sudden death. Sudden death seemed to be precipitated by acute arousal of affects such as anxiety or anger. The authors concluded that the combination of depression and acute arousal produced disharmonious responses in the hormonal and autonomic systems, although evidence for the latter conjecture was not provided.

In a now-classic study, Richter (1957) investigated the nature of this phenomenon in wild and domesticated Norway rats and attempted to identify the crucial variables. Based on some puzzling observations made in connection with another problem, Richter de-whiskered 34 wild and 12 domestic rats and placed them in an inescapable water jar. In this situation, normal control rats will swim 60 to 80 hours prior to exhaustion. He found that 3 of the 12 domesticated rats dove to the bottom of the jar and drowned within two minutes; the remaining 9 swam 40 to 60 hours. On the other hand, all 34 wild rats died within 15 minutes following immersion. Moreover, heart and respiratory rates were shown to slow down before death, indicating that the rats died as a result of overstimulation of the parasympathetic rather than the sympathicoadrenal system. Richter attributed the sudden deaths to hopelessness. "The situation of these rats scarcely seems one demanding fight or flight—it is rather one of hopelessness . . . the rats are in a situation against which they have no defense . . . they seem literally to 'give up'" (p. 196).

From the salutogenic perspective of this chapter, the more interesting finding

reported by Richter is that immersion of the wild rats for a few minutes on several occasions (stress inoculation) eliminated the sudden death phenomenon. Wild rats who learned that the situation was not hopeless swam just as long as (or longer than) domestic rats. In Stotland's (1969) words, "Hope of survival is essential for action for survival" (p. 21).

In an attempt to document the sudden death phenomenon in humans, Engel (1971) analyzed a large number of newspaper accounts of sudden unexpected deaths. He identified eight life-setting categories conducive to illness or death: (1) the collapse or death of a close person; (2) during acute grief; (3) on threat of loss of a close person; (4) during mourning or on an anniversary; (5) on loss of status or self-esteem; (6) personal danger or threat of injury; (7) after a danger is over; and (8) reunion, triumph, or happy ending. Common to all of the life events is either a response to overwhelming excitation or hopelessness (giving up). Engel proposed that both the fight-flight and the conservation-withdrawal systems are provoked by the psychological stress leading to lethal cardiac events.

In another study, Engel (1968) described the common coping response leading to either illness or death as the "giving-up, given-up complex." Its characteristic feature is a sense of psychological impotence, a feeling that one cannot cope with changes in the environment and that previous coping mechanisms and resources are no longer effective or available. The "giving-up, given-up complex" is characterized by: (1) a sense of helplessness and hopelessness; (2) a depreciated image of oneself; (3) a loss of gratification from relationships or roles in life; (4) a disruption of the sense of continuity between past, present, and future; and (5) reactivation of memories of earlier periods of giving up (Engel, 1968). For Engel, the "giving-up, given-up complex" is neither a necessary nor a sufficient condition for illness or death but plays a role in *modifying* the capacity of the organism to cope with disease.

Miller and Lieberman (1965) investigated the effect of changes in the sociophysical environment on the mortality, morbidity, and psychological disability of aged persons. Forty-five women, aged 61 to 91, underwent relocation from a small state-controlled home to a large state institution. All were free from mental and physical symptoms at the initial interview. Several measures of adaptive capacity and affect were obtained at 2 weeks prior to relocation, and 6 weeks and 18 weeks after moving. At 18 weeks, 23 of the 45 women showed negative change in health (death, physical and psychological deterioration). Depressive affect at the initial interview was the only variable to differentiate the no-change from the negative-change groups. Women who had been depressed before relocation showed health declines after moving. Upon reexamination of the depression construct, however, the authors determined that meaninglessness and hopelessness were the primary components of their measure. Thus it was meaninglessness and hopelessness that modified the capacity of the women to deal with relocation stress leading to rapid physical and psychological decline.

The evidence suggests that sudden death or illness is the result of strong emotional reactions, particularly feelings of depression and hopelessness. Sudden death can occur in otherwise healthy people and is augmented in individuals predisposed to illness. The specific physiological mechanism is still unclear, although it seems to involve both the sympatheticoadrenal and the parasympathetic nervous systems.

Hopelessness and suicide. One of the most disturbing aspects of mental health and aging is the dramatic rise in the suicide rate of people 60 years and older. In 1975, Americans over 60 years of age represented 18.5 percent of the population but committed 23 percent of all suicides. Older white males are particularly vulnerable. While the suicide rate in the population has remained relatively stable at between 9 and 13 per 100,000 since 1945, the rate for older white males has ranged between 40 and 75 per 100,000. The male/female ratio during the ages 65 to 69 is 4 to 1. This increases to 12 to 1 by age 85. While females *attempt* suicide three times as often as males, males *commit* suicide three times as often as females (Miller, 1979).

Stengel (1973) has made a psychodynamic distinction between suicide attempters and suicide committers. Attempters appeal for help; committers are motivated toward self-destruction. The success of older males in committing suicide suggests that suicidal acts for appeal are not as common among older males. Suicidal behavior is often associated with an inability to cope with significant losses (Farber, 1967; Henderson, 1977; Resnik & Cantor, 1970). Losses in economic, social, physical, psychological, and emotional spheres are more common among the elderly, not necessarily because of age but because of having lived and experienced life longer.

Some elderly people experience grave tragedies throughout life, but never even think of committing suicide; others may suffer only minor fears, yet lose their desire to live. Several sociological and psychological explanations have been offered to account for suicidal behavior, including anomie, role failure, feelings of inferiority, loss of self-esteem, lack of a confidant, loneliness, dependency conflict, depression, and hopelessness (Birren, 1964; Durkheim, 1951; Farber, 1967; Henderson, 1977; Hendin, 1963; Miller, 1978, 1979; Pfeiffer, 1977; Stenback, 1980). Depression, defined as an affective disorder manifested in psychological (e.g., dysphoric mood, apathy, withdrawal) and physical (e.g., loss of appetite, sleep disturbance, constipation) ways, is the most commonly cited explanation (Stenback).

Depression may not explain why elderly white males are so much more at risk. In fact, recent evidence shows that elderly women are significantly *more* depressed compared to elderly males (Linn, Hunter, & Harris, 1980; Oltman, Michals, & Steer, 1980). Also, certain kinds of depressive disorders are episodic in nature (Pfeiffer, 1977) and, unlike hopelessness, do not necessarily imply negative future expectations. The theme to be developed in this section is that suicide in older adults, particularly in white males, can be better explained by the mental state of hopelessness or despair brought on by repeated failures to cope with various losses (Farber, 1967). As Lifton (1979) points out, "People who commit suicide may or may not be significantly depressed, but they are almost certain to be affected by despair—by a sense of radical absence of meaning and purpose, and of the impossibility of human connection" (p. 249). Given feelings of hopelessness or despair, the suicidal person can create a future only by killing himself or herself (Lifton, 1979). Thus, suicide can be viewed as an act carried out to relieve the state of hopelessness (Stenback, 1980).

The relationship between hopelessness and suicide has been investigated at the cultural level (Cecchini, 1976; Farber, 1967) and the individual level (Bjerg, 1967; Farnham-Diggory, 1964; Ganzler, 1967; Henderson, 1977; Minkoff, Berg-

man, Beck, & Beck, 1973; Pokorny, Kaplan, & Tsai, 1975; Stenback, 1980). Farber found Danes to view life less hopefully, to be more concerned with the present, to become more depressed, and to commit suicide more frequently than Norwegians. Bjerg found loss of hope to be the main theme in 81 percent of suicide notes. Farnham-Diggory reported that suicidal patients had a significantly constricted view of the future compared to nonsuicidal patients. Ganzler found that in comparison to nonsuicidal psychiatric outpatients and normal subjects, the suicidal group rated the future more negatively.

The importance of hopelessness as the critical variable in suicide was highlighted in a study of 68 male and female suicide attempters, age range 14 to 63 years (Minkoff et al., 1973). The patients, the majority of whom were diagnosed depressive, completed scales of hopelessness, depression, and suicidal intent within 48 hours of admission to the hospital. A highly significant correlation was found between hopelessness and seriousness of suicidal intent. Furthermore, seriousness of intent was found to be more closely related to hopelessness than to depression. In a subsequent comparison study, Pokorny et al. (1975) suggested that external support systems might lessen the impact of hopelessness as a predictor of suicide.

Feelings of hopelessness and despair were also evident in the psychophysiological profiles of severely depressed suicidal patients studied by Bunney and Fawcett (1967). These investigators identified four specific patterns of 17-hydroxycorticosteroid (17-OHCS) excretion among 143 depressed patients. Patients with relatively stable high 17-OHCS levels and patients with periodic one-to-two-day peaks measured over an extended period of time were later found to be suicidal. None of the depressed patients with low to moderate cortisol levels showed suicidal tendencies. The suicidal patients were described as feeling utterly hopeless, suffering from intense guilt feelings, and were of the opinion that their families and friends would be better off without them. These findings have practical and theoretical implications. First, the specific pattern of biochemical changes can be used to aid in the identification of potentially suicidal individuals. Second, the relationship between behavioral manifestations of depression and biochemical changes is a complex one. Third, depression per se may not be a sufficient condition for suicidal behavior.

In a review of the evidence of possible psychosocial factors in the life history of suicidal individuals, Henderson (1977) concluded that parental loss through divorce, separation, or death early in the person's life predisposes that individual to suicidal tendencies. This individual may later develop a sense of self-worth primarily through close relationship with a significant other such as the spouse. However, when the individual again experiences a sudden disruption in the affectional relationship he or she becomes vulnerable to feelings of hopelessness, suicidal ideation, and suicidal behavior (Henderson, 1977).

Family attitudes during the early developmental period may also predispose an individual to suicide tendencies. In a prospective study of former medical students cited in an earlier section, Thomas et al. (1979) found a striking similarity between students who subsequently developed cancer and those who became suicidal/mentally ill. Both groups rated themselves significantly lower on the closeness-to-parents scale compared to their healthy classmates. While the cancer and suicidal groups were similar on some psychological variables, they differed on

others. For example, the suicidal group showed significantly more evidence of depression and anger than did those who later developed cancer.

Considering Henderson's (1977) description of suicidal individuals, LeShan's (1966) life history pattern in cancer patients and the Thomas et al. (1979) study, the only apparent difference between the cancer and suicidal patients is that the former tend to suppress, whereas the latter more readily express their emotions. It may well be that faced with the same degree of hopelessness, one individual does not have the courage to commit suicide and subsequently develops cancer; whereas another individual expresses his or her anger and frustration by taking a destructive act—committing suicide.

In summary, the hopelessness-suicide relationship can be described by a specific and unique psychosocial pattern. The suicidal individual is one who has experienced early traumatic loss of an affectional relationship and/or lack of closeness to parents. In adulthood, a sense of competence, optimism, and meaningfulness is developed primarily through the spouse, the job, or the children. Later in life, disruptions through personal threats and losses lead to feelings of depression and failure. The projection of failure experiences into the future gives rise to feelings of hopelessness or despair, culminating in attempted or committed suicide.

Older white American males, particularly those from the middle or upper class, may be more vulnerable to a disruption of their goals, value orientations, and sense of competence later in life compared to either females (Thurnher, 1974) or to nonwhite male peers, fewer of whom would share the higher social status. In Farber's (1967) words:

> One possible explanation in terms of the present theory is that the upper-class person, when he becomes depressed in the face of some deprivation, is more restricted than others in psychological space of free movement, in his areas of hope. In contrast, the member of a class below in such a state can always hope for socioeconomic improvement as a possible alleviation of his difficulties. The upper-class person has everything, and still he is depressed; he knows that all the things and courses available to him are useless in his plight. In his elevated position, the world has a low ceiling . . . Suicide, then, is in the main an act of hopelessness, of despair and desperation. (p. 305)

The Salutogenic Orientation

The neologism *salutogenesis* was coined by Antonovsky (1979) to describe a new perspective on the origins of health. The salutogenic orientation embraces the question of why, in the midst of ubiquitous stressors, so many individuals are able to stay healthy most of their lives. The major consequences of a pathogenic orientation have been the overriding emphasis on negative emotional states and their influence on illness outcomes and the neglect of studying individuals who, under extremely stressful circumstances, do not become ill. It is interesting to note that in a widely referenced prospective study of life change and illness susceptibility, Holmes and Masuda (1974) found that 49 percent, 25 percent, and 9 percent of physicians with high, medium, and low life change scores, respectively, became ill 9 months later. However, not mentioned are the 51 percent in the high-risk group who do *not* report illness. Clearly, other factors are at work in the high-risk group

that have not been taken into account. Kobasa (1979) used the term *hardiness* to describe a personality mediator in resistance against stress and illness; the *hardy* individual is characterized by a strong commitment to self, an attitude of vigorousness toward the environment, a sense of meaningfulness, and an internal locus of control. Antonovsky (1979) proposed the concept *sense of coherence*, an orientation that sees life as meaningful and manageable, as a psychological resource to resist stress and illness. Recently, Hutschnecker (1981) described many case studies from his practice to substantiate the theme that hope sustains life while hopelessness causes death. In the final chapter on "Hope and Cancer," Hutschnecker cites from an article produced by Hoffman-LaRoche Pharmaceutical Company:

> In a study of two hundred cancer patients, it was observed that each and every one maintained at least a little hope. People without hope see no end to their suffering but those with hope have 'confidence in the desirability of survival.' (p. 237)

In this section, we will explore the role of the salutogenic concept of personal optimism and its relationship to health-promoting behavior.

Personal optimism and cancer remission. One of the puzzling phenomena in medical practice is the sudden regression in tumor growth for which an adequate explanation has yet to be offered. It is referred to as *spontaneous remission*. A related phenomenon, whose operation is well documented, is the so-called *placebo effect*, a positive expectation that the treatment will help, creating an expectancy of health (Beecher, 1955; Simonton et al., 1978). Simonton et al., for example, found that cancer patients with a positive attitude had better responses to treatment compared to patients with negative attitudes. Furthermore, patients with a serious prognosis but positive attitude responded better to treatment than did patients with less serious prognoses and negative attitudes. Thus attitude seems to be a better predictor of response to treatment than severity of the disease. In the Greer et al. (1979) study of breast cancer patients reported earlier, it was found that a fighting spirit, defined as a highly optimistic attitude accompanied by a search for greater information about breast cancer, proved to be an extremely effective coping response in arresting the further growth of tumors.

A mind/body model of cancer regression has been proposed by Simonton et al. (1978). The model is presented in Figure 7-3. It is based on the premise that active and positive participation in one's health can influence the onset of the disease, the outcome of treatment, and the quality of life. The model describes how the psychological state of hope or personal optimism can influence the neurophysiological systems leading to cancer regression. Strong evidence in support of such an assertion, however, is still lacking. Much of it is in the form of anecdotal accounts and case studies (Cousins, 1979; Hutschnecker, 1981; Simonton et al., 1978).

One of the most dramatic examples of the effect of positive emotions in reversing the effect of a life-threatening disease is the well-documented case study of Norman Cousins. Cousins suffered from an "incurable" collagen illness, a disease of the connective tissues that leads to a progressive disintegration of body cells. Through a regimen of good doctor-patient relationship, a strong will to live, an

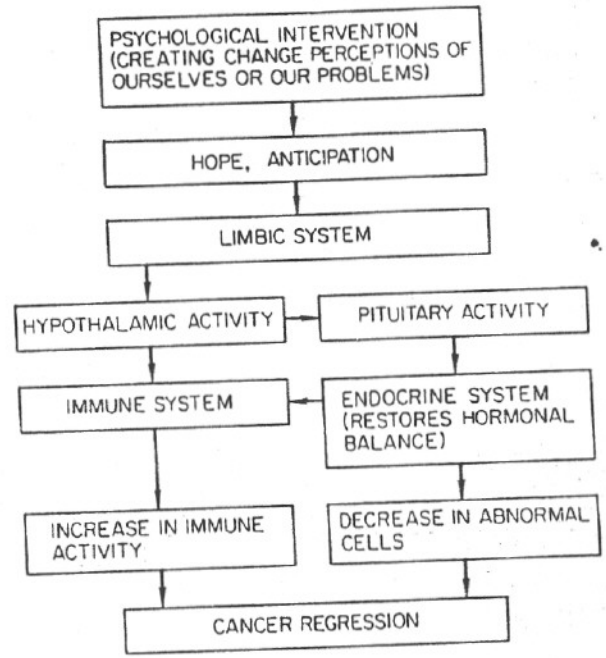

FIGURE 7-3.
A mind/body model of cancer regression [From *Getting Well Again* by O. Carl Simonton, M.D., Stephanie Matthews-Simonton, & James Creighton. Copyright © 1978 by O. Carl Simonton & Stephanie Matthews-Simonton. By permission of Bantam Books, Inc. All rights reserved.]

optimistic outlook, high doses of ascorbic acid (Vitamin C), and laughter, Cousins was able to mobilize his body's own natural healing resources to achieve full recovery (Cousins, 1979). The exact mechanisms in the recovery process are unknown. Suffice it to say that whatever the mediating physiological mechanism, mental attitude appears to be a powerful weapon in the war against disease.

Simonton et al. (1978) have developed a program to train cancer patients to use their minds and emotions to alter the course of their malignancies. The program was designed to be used in conjunction with traditional medical treatment for cancer. It utilized techniques for learning positive attitudes, relaxation, visualization, goal setting, pain management, exercise, and the building of emotional support systems. The visual imagery process, the core of the program, involved a period of relaxation during which the patient would mentally picture a desired goal. The cancer patient would be asked to visualize the cancer, the treatment destroying it, and the use of natural bodily defenses leading to recovery.

Over a number of years, 159 patients with a diagnosis of medically incurable malignancy took part in this program. Life expectancy for this group of patients, based on national norms, was 12 months. Sixty-three patients were still alive at the time of data reporting with an average survival time of 24.4 months; the average survival time of patients who had died was 20.3 months. In a matched control group of patients receiving only medical treatment, the average survival time was 12 months, clearly less than half that of patients still alive. Of the 63 patients in the training program who were alive, 22.2 percent showed no evidence of cancer, 46.2 percent showed tumor regression or disease stabilization, and only 31.6 percent developed new tumors. In addition, the quality of life as measured by the level

of daily activity during and after treatment seemed to be almost at the same level as prior to the diagnosis.

While these results are encouraging, there is still much controversy concerning the beneficial effects of positive-attitude training. Simonton et al.'s findings need to be replicated in better-controlled investigations. The visual imagery process developed by Simonton et al. is intriguing in that it appears to be a concrete form of personal optimism; for example, it teaches patients to visualize that cancerous cells will be destroyed. Recently, the use of psychotherapy aimed at affecting the physical disease has received increasing attention (Cunningham, 1982; Feinstein, 1983). The effectiveness of this approach, however, has yet to be demonstrated. Needless to say, the relative merits of different positive-attitude training procedures for cancer patients remain an empirical question.

Dimensions of future orientation in the elderly. We have already documented the importance of a positive future orientation in health. In this section, we will attempt to identify the major dimensions of future orientation which may be importantly related to physical and mental health in the elderly.

One of the stereotypes about the elderly is that they tend to dwell disproportionately on the past (Gitelson, 1948; Lewis, 1971; Neugarten, 1964; Schuster, 1952). This widely held belief seems to make good intuitive sense, because for the elderly, the future becomes increasingly shorter, present activities become increasingly limited, but the reservoir of past events continues to increase. However, empirical support for this stereotypic belief is very weak. For example, in the Lewis (1971) study, reminiscence is defined as the frequency of talking about the past in a 30-minute interview. Cameron (1972) correctly points out that "because a person *talks* relatively more about the past does not necessarily mean he generally *thinks* more about the past" (p. 118).

By employing a consciousness-sampling technique, which consists of interrupting the subject and asking the question, "What were you just thinking about?", Cameron (1972) found that people most frequently think about the present, next most about the future, and least about the past, regardless of their age. For example, for the middle age sample, 11 percent thought about the past, 62 percent about the present, and 27 percent about the future; for the 56- to 64-year-olds, the percentages associated with thinking of the past, present, and future were 14 percent, 60 percent, and 27 percent. In subsequent studies, Cameron, Desai, Bahador, and Dremel (1977) again found that at any given moment between 8:00 a.m. and 8:00 p.m., people are most likely to think about the present, and least likely to think about the past. They also reported that for the U.S. national sample, future-oriented thinking declines with age, while present-oriented thinking increases with age, but there is no clear evidence of increase in past-oriented thinking over the life span.

However, Cameron's results may be questioned on methodological grounds. When a subject is approached by a stranger and asked the question, "What were you just thinking about?", it is highly unlikely that the subject would disclose his or her thoughts or feelings. In other words, what is reported may not be what is entertained privately by the subject. Secondly, sampling consciousness between 8:00 a.m. and 8:00 p.m. favors thinking of the present at the expense of past-oriented thinking, because daily activities typically occur during this period of time.

If consciousness sampling was taken before 8:00 a.m. and after 8:00 p.m., frequency of past-oriented thinking would have been higher because one is apt to review the day's events or to engage in reminiscing while awake in the dark.

From our point of view, the content of consciousness is much more important than temporality. It is *what* one thinks rather than *how much* one thinks about the past, present, or future that importantly affects one's well-being. Further, we hypothesize that what one thinks about in the past, the present and the future is equally important, regardless of how much time is spent in each of these three temporal orientations. The generally held belief that one spends more and more time in reminiscing but less and less time in future-oriented thinking might be true, notwithstanding Cameron's findings, but that does not necessarily mean that future-oriented thinking is less important for the elderly. What one thinks about in the future always has some consequences on the well-being of the individual, no matter how little time is devoted to prospective thinking. Even one moment's reflection on the hopelessness of the future should be sufficient to make one feel depressed. Similarly, just one glimpse of the many exciting or rewarding opportunities that lie ahead should be sufficient to spur one onward.

The issue of temporality in the elderly, while interesting in its own right, suffers from a lack of theoretical analysis. For example, what does it mean when one spends more time thinking about the future than about the past? Is this person optimistic or is he or she simply worried too much? How is temporality functionally related to emotional and health status? What are the determinants of temporality in thinking? Until these questions are answered, data on temporality have only very limited theoretical and practical implications.

Another finding relevant to the issue of future-oriented thinking among the elderly is the lack of expressed concerns or worries for the future. For example, Gurin, Veroff, and Feld (1960) in a nationwide survey of Americans found that only 6 percent of those between 21 to 34 years old reported that they "never worry" but 17 percent of those 55 years old and over claimed that. We would expect the elderly to be more worried about health problems because health generally decreases with age, but Gurin et al. found that 50 percent of those over 60 years of age expressed no worry about health, while 38 percent of middle-aged subjects (40 to 55 years) reported no health worries.

One hypothesis for the lack of future concerns is denial or avoidance (James, 1964). He found that 22 percent of 672 subjects over 60 years of age did not answer the question whether they "worry about becoming sick." This suggests that the elderly tend to avoid thinking about those threatening unpleasant events that are likely to be experienced in the future.

Heyman and Jeffers (1965) propose an alternative interpretation. They suggest that "although the mechanisms of denial may have been present, the lack of expressed concern over long-term illness appears to be based chiefly on the security these elderly persons found in family life, religion, a stable environment, financial resources and their relative good health at the time of the study" (p. 159). While these characterizations may be true of the sample of elderly investigated, it is unlikely that most of them enjoy all the benefits listed by Heyman and Jeffers.

Recently, Kulys and Tobin (1980) conducted a study to test the denial hypothesis and the security hypothesis among the elderly. They developed a measure of anticipation, planning, and preparation (APP) for future crisis in the

lack of future-orientation (i.e., the inability to characterize the immediate and distant future) and a negative evaluation of past life differentiated the elderly who failed to adapt to extensive changes in the sociophysical environment from those who adapted successfully. Failure to adapt was indicated by physical illness, deterioration in psychological functioning, and mortality.

Lehr (1967), as part of a larger longitudinal study, investigated the relationship between attitude towards the future and objectively rated health status. Attitudes toward the future were assessed by means of interview. The responses obtained during the interview were later judged by four or five raters on a 9-point global future-orientation rating scale. Point 1 means "completely negative attitudes toward the future, complete absence of positive expectations, and hopelessness," while point 9 means "completely positive attitudes toward the future, no fears, and expectation that the future time will bring only pleasant experiences." One hundred middle-class community elderly were divided into four groups: 60- to 65-year-old males and females, and 70- to 75-year-old males and females. Highly significant correlations between an optimistic future attitude and good health as assessed by medical examination were obtained in both groups of males and the younger female group. However, in the older female group, a negative attitude toward the future was also found in subjects rated to be in good health by the physician. The two age groups did not differ in future orientation, but men for both age groups had a more positive attitude than did their female counterparts.

Lehr (1967) also rated the subjects on six personality rating scales: activity, mood, general responsiveness, ego control, and feelings of security. These ratings were based on observations during interview sessions and informal gatherings. An optimistic attitude was related to a number of these personality ratings, but the pattern varied according to age and sex. For example, in the younger males, an optimistic attitude was significantly related to mood, general responsiveness, general adjustment, and ego control; in older males, optimism was significantly related to activity, mood, general responsiveness, and general adjustment. In younger females, optimism was significantly related to activity, mood, and general responsiveness; in older females, optimism was significantly related only to activity and feelings of security.

Ludwig and Eichhorn (1967) studied the relationship between the value orientations of farmers of different ages and self-rated health status. Optimism, defined as "faith in the future, belief in a benevolent God and control over one's own well-being" (p. 59), was one of four value orientations investigated by the authors. Farmers were divided into two age groups: 30 to 49 years and 50 to 69 years of age. Optimism was indirectly measured by respondents' answer to two questions. The first question was, "If you've got a bad disease, it's just as well you don't learn about it." Agreement with this statement implies lack of optimism about future events. Ludwig and Eichhorn reported that 23 percent of the older farmers agreed, while only 11 percent of the younger farmers did. With respect to health, 23 percent of the farmers from both age groups who reported some symptoms agreed, while 14 percent of those who reported no symptoms agreed. The second question was whether the respondents agreed with the statement, "Illness and trouble is one way God shows His displeasure." Agreement with this statement, according to the authors' reasoning, would imply lack of personal optimism because it meant a rejection of belief in a benevolent God. Results based on this question

are highly similar to those based on the first question. The writers concluded that "the experiences associated with aging such as declining health led people to reject an optimistic approach to life" (p. 62). However, one may question the validity of the optimism measure used by Ludwig and Eichhorn. For example, one could dispute the assumption that benevolence and discipline are mutually exclusive. A loving father does not cease to be benevolent when he shows displeasure and disciplines his child for misbehavior. Similarly, God does not cease to be benevolent when He corrects or disciplines His children.

Several other investigators have also demonstrated that various measures of future orientation are positively related to life satisfaction and mental health (Dickie, Ludwig, & Blauw, 1979; Lewin, 1948; Sameth, 1980; Schonfield, 1973; Spence, 1968; Steuer, 1977). In one of the earliest studies, Lewin (1948) found that a sense of psychological future was positively related to morale in industrial workers. Later, Spence (1968) reported making plans for the future to be positively related to life satisfaction or morale.

Making plans for the future or future commitment seems to be most frequently used as a measure of personal optimism or positive future orientation. Schonfield (1973) investigated the relationship between future commitments and successful aging in a sample of 100 non-institutionalized elderly females. A future activity index was developed based on a 7-day future diary and a listing of activities on a "usual day." Successful aging was measured by 11 scales: happiness, financial situation, health, activities, family relationships, pleasure from companions, housing, clubs and organizations, transportation, usefulness, and a composite successful aging score. A short personality inventory was also administered. Significant associations were found between the future activity index and the composite successful aging score, ease of transportation, challenging activities, happiness, and health. Interestingly, none of the personality attributes, such as neuroticism, introversion, rigidity, aggression, and depression were significantly related to future commitments.

Dickie, Ludwig, and Blauw (1979) examined the relationship between future orientation, life satisfaction, and several measures of health in both institutionalized and non-institutionalized older adults. In both groups, the elderly who made plans for the future reported greater life satisfaction than did those without future plans.

Steuer (1977) measured both subjective time extension and future commitments. Time extension was based on subjective life expectancy (SLE) and number of good years left to live (NGL). Future commitment was measured by the number of plans made for the near and distant future. In a multiple regression analysis, Steuer found that SLE, NGL, and future commitment were all significantly correlated with life satisfaction; however, the two time extension measures accounted for most of the explained variance. More recently, Sameth (1980) also found that perceived length of future (extension) was positively associated with overall health and cognitive activity and inversely related with feelings of loneliness. Sameth also reported that perceived importance of future (quality) was positively correlated with overall happiness and negatively correlated with psychological and psychosomatic complaints and feelings of loneliness.

In sum, there is sufficient evidence demonstrating the beneficial effect of a positive future outlook on health and life satisfaction. However, most of the measures used to tap personal optimism are of the one-item variety (e.g., Cantri

& Roll, 1971) and none of the measures had proven validity or reliability. Therefore, we have attempted to construct a personal optimism scale which is based on spontaneously generated open-ended responses, and which includes both future commitments and future expectations.

ASSESSMENT OF PERSONAL OPTIMISM IN THE ELDERLY

The Future Orientation Survey (FOS)

Our measure of personal optimism, as shown in Appendix 1, has a number of new features. It measures both the number of events anticipated, and the confidence that each of these events will take place. Thus, the scale provides three measures: number of future events, average confidence ratings, and total confidence ratings.

Many of the anticipated events are plans to be carried out by the respondents. These events are essentially future commitments. However, different from traditional measures of future commitments, our scale also includes positive future events initiated and carried out by others, such as the birth of a grandchild, or future career success of children. These are events uncontrollable by the respondents. In short, the anticipated events encompass both self-initiated and other-initiated future events.

It is likely that a person may anticipate many things but is not confident at all that any of these things will materialize. The degree of confidence that each anticipated event will take place is measured by a 5-point scale, anchored at Point 1 (Not confident at all) and Point 5 (Extremely confident). The average degree of confidence over all the anticipated events can be calculated.

The most comprehensive index of personal optimism is perhaps provided by the cross-product of the number of anticipated events, and the average degree of confidence. This total confidence measure thus takes into account both the number of anticipated events and expressed confidence.

The FOS was administered to 40 community and 40 institutionalized elderly. The community group ranged from 70 to 93 years of age, with a mean age of 77.4 years. The institutionalized group ranged from 70 to 90 years of age, with a mean age of 78.2 years. The two groups did not differ significantly in terms of age. There were 28 females in the community group and 27 females in the institutionalized group.

The respondents were encouraged to verbalize whatever things or events they looked forward to, and the experimenter simply jotted down the responses verbatim. The respondents were then asked to complete the confidence rating scale for each response.

The responses were content-analyzed and classified into eight categories of life concerns: family life, friendship, leisure/recreation, community/social service, health, religion, personal development, and housing/living conditions. Each response was classified as either short-term or long-term. An event was considered as short-term if it was expected to take place within a year. An event was classified as long-term, either because the event was of an enduring and protracted nature, or

because its anticipated occurrence was in some distant future. In addition to the *extension* dimension, each response was also coded with respect to the *locus of initiation*. An event was considered as self-initiated if the respondent takes an active part in initiating, planning, and carrying out the event, such as visiting a friend, finishing reading a book. An event was treated as other-initiated if it is initiated, planned, and carried out by others, and over which the respondent has little or no control. Some examples of the different classifications are shown in Table 7-2.

The percentages of elderly that expressed optimism in different areas of life concerns are shown in Table 7-3. It is quite obvious that for both the community and institutionalized samples, most of the future-oriented thinking is revolved around one's own family. Since all of the elderly subjects no longer held a job at the time of the interview, how to spend their time in leisure activities became a major preoccupation. Friendship, health, voluntary service, and religious activities are also quite prominent in their minds as they think of the future. Very few people looked forward to a change in housing/living conditions. On the surface, it might appear that they were contented with where they lived.

An alternative explanation is that they were realistic about their own financial resources and the limited options they had. Therefore, most of them simply stopped hoping for any improvement in terms of accommodation.

What is most disquieting is the very low response rate in the category of personal development. Given that they have ample time on their hands, they could really develop their potentials through education and learning. They could enroll in various courses, acquire new skills, and even start a new career. They might not be aware of the learning opportunities available to senior citizens. They might also be deceived by the myth that "you cannot teach old dogs new tricks." Whatever the cause, this should be an area of concern to social gerontologists and people interested in the well-being of the elderly. The process of aging is not incompatible with growth. One can grow old and remain growing. The potentials for growth are always there, regardless of one's age, as long as there is the desire to grow.

It is worth noting that none of the elderly we interviewed anticipated financial gains. Given the fact that most of them lived on fixed incomes, it is not surprising that they did not hold out any hope for financial improvement.

We compared the number of optimistic responses for each area of life concern between the community and institutionalized elderly. The only significant difference was in the area of leisure/recreation. Community subjects made more anticipatory responses than their institutionalized counterparts (1.28 vs. 0.65), $t = 2.88$, $p < .01$). The difference seems to suggest that the community elderly have more desirable and enjoyable leisure activities to look forward to, even though institutions might provide many organized leisure activities for their residents.

When we compared the two samples in terms of the two theoretical dimensions (extension and locus of initiation), several significant differences emerged as shown in Table 7-4.

The upper half of the table is based on number of events (density). Overall, community elderly had more things to look forward to than institution subjects did. More specifically, the two groups differed in long-term rather than in short-term, and in self-initiated rather than in other-initiated events. These findings confirm that community elderly are more likely to initiate and plan long-term events than institutionalized residents are.

TABLE 7-2 Some Examples of Personal Optimism Responses in the Elderly (Age 70 and Older)

	SELF-INITIATED		OTHER-INITIATED	
LIFE CONCERN	SHORT-TERM	LONG-TERM	SHORT-TERM	LONG-TERM
Family Life	Visit my family	In future I can continue to look after my wife and home	Visit from my family	To see my youngest son get married and settled down
Leisure/Recreation	Reading good books	Visit Scotland next year. To tape my life story	Special events at the senior citizen's home	To have more recreational facilities for the seniors
Friendship	Visit my friends	Keeping good neighbors	Hearing from my friends. Visit from my friends	My friend will eventually move to the same senior's home
Community/Social Services	Help bazaar of the senior citizen's home	Continued involvement in social service	To be served by "Meals on Wheels"	That the government will not fail the elderly
Religion	To attend a church retreat. To take part in a Bible class	To get back to an active church life	Having a minister visit	God's kingdom come; Salvation of friends or relatives
Health	My eye healing completely	To maintain my health so that I can stay by myself	Health of my two friends improving	Cancer will be beaten
Housing/Living Conditions	Redecorate the room	To get out of the institution and live in my own apartment	Waiting for son to repair the verandah	My son to complete his new home
Personal Development	To attend a talk on aging	To learn a new language	My daughter has a good summer job	See my grandchildren growing up to be useful citizens

TABLE 7-3 Percentage of Elderly That Expressed Optimism in Different Areas of Life Concerns

LIFE CONCERNS	COMMUNITY (N=40)	INSTITUTION (N=40)	TOTAL (N=80)
Family Life	85.0	87.5	86.3
Leisure/Recreation	75.0	50.0	62.5
Friendship	15.0	20.0	17.5
Health	17.5	12.5	15.0
Community/Social Service	15.0	12.5	13.7
Religion	15.0	7.5	11.3
Personal Development	7.5	10.0	8.7
Housing/Living Conditions	2.5	10.0	6.3

Average confidence ratings did not differentiate between the community and institution samples (3.74 vs. 3.76). For most of the subjects, the confidence rating was higher than Point 3 on the 5 point scale, indicating that they were fairly confident that the anticipated event would come to pass. The confidence rating suggests that the elderly are too realistic to entertain wild fantasies and that they would verbalize their expectancies only when they are fairly sure that the anticipated events are likely to materialize.

The total confidence ratings are shown in the lower half of Table 7-4. The results are very similar to those based on number of events. Since total confidence takes into account both number of events and expressed confidence, it is a more complete index of personal optimism than number of events. Therefore, we employ the total confidence measure in validating the FOS.

Subjects were also asked to complete the following instruments for purposes of concurrent validation: Beck's Depression Scale (Beck, 1967; Gallagher, Nies, & Thompson, 1982), Reker and Peacock's Life Attitude Profile (Reker & Peacock,

TABLE 7-4 Mean Differences between Community and Institution Respondents in the Number of Events Anticipated and Total Confidence Ratings

	COMMUNITY (N=40)	INSTITUTION (N=40)	*T*-VALUE
Number of Events (Density)	3.80	2.90	2.44*
Short-term	2.93	2.48	1.31
Long-term	0.87	0.42	2.22*
Self-initiated	2.52	1.73	2.42*
Other-initiated	1.27	1.18	0.38
Total Confidence Ratings	14.20	10.90	2.06*
Short-term	10.82	9.30	0.99
Long-term	3.38	1.60	2.26*
Self-initiated	9.10	6.70	1.81
Other-initiated	5.10	4.20	0.84

*$p < .05$

1981), Reker and Wong's preliminary Perceived Well-Being Scale and Reker and Wong's Present Commitment Survey. Thirty-one community subjects and 29 institution subjects completed these additional questionnaires. Correlation coefficients between personal optimism ratings and these additional measures are shown in Table 7-5.

It is quite clear that total confidence ratings are positively related to Perceived Well-Being, Present Commitment, several subscales of the Life Attitude Profile (Life Purpose, Will to Meaning, Future Meaning to Fulfill) and negatively related to depression. However, when the total confidence ratings were broken down according to extension (short-term versus long-term) and locus of initiation (self versus other), only long-term and self-initiated events were primarily responsible for these significant correlations. These findings seem to suggest that one is more likely to experience the salutatory effects of personal optimism, when one initiates, plans, and carries out activities that extend into some distant future. Self-initiation has more beneficial effects than other-initiated probably because self-initiation enables one to maintain a sense of self-efficacy.

Long-term events, by definition, extend further into the future than short-term events. Greater optimism is required to look beyond the immediate future. Therefore, long-term events are expected to have a stronger relationship with well-being and positive life attitudes than short-term events.

The absence of significant correlations between perceived psychological well-

TABLE 7-5 The Relationship of Personal Optimism to Well-Being, Depression, Life Attitude, and Present Commitment

	PERSONAL OPTIMISM				
	TOTAL CONFIDENCE	SHORT-TERM	LONG-TERM	SELF-INITIATED	OTHER-INITIATED
Perceived Well-Being (Preliminary)					
Psychological	.15	.09	.13	.02	.19
Physical	.21*	.07	.30**	.21*	.09
Composite	.31**	.17	.32**	.30**	.14
Beck Depression	−.32**	−.29**	−.11	−.30**	−.15
Life Attitude Profile (LAP)					
Life purpose	.35***	.25*	.24*	.34**	.15
Existential vacuum	−.05	.05	−.19	−.10	.04
Life control	.10	.27*	−.30**	.15	−.02
Death acceptance	−.13	−.13	.00	−.16	−.03
Will to meaning	.25*	.14	.26*	.20	.18
Goal seeking	.02	.09	−.02	.16	−.08
Future meaning to fulfill	.36***	.20	.36***	.36***	.15
Present Commitment	.29**	.12	.36***	.25*	.15

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

being and personal optimism comes as a surprise. One problem with the preliminary Perceived Well-Being Scale is that it is based on a True-False forced choice format and there are only six questions in the psychological well-being subscale. As a result, the range of the data was very limited. This problem has been corrected in the revised Perceived Well-Being Scale (Reker & Wong, 1984), which includes some new test items and employs Likert-type scales.

The Present Commitment Survey measures the number of activities to which the respondent currently devotes time and effort. It is revealing that subjects who gave more long-term optimistic responses also reported more present commitments. However, any causal relationships between long-term optimism and the degree of present commitment remains to be demonstrated.

TABLE 7-6 Means, Standard Deviations[a] and *T* Values for Community and Institutionalized Elderly on Several Dependent Variables

VARIABLES	COMMUNITY	INSTITUTION	*T* VALUES	*P*
	(N=31)	(N=29)		
Perceived Well-Being (Preliminary)				
Psychological	5.7 (.9)	5.4 (1.1)	1.11	.270
Physical	4.6 (1.4)	3.6 (1.7)	2.52	.01
Composite PWB	10.5 (1.5)	9.0 (1.9)	3.46	.001
Beck Depression (short form)	2.9 (2.2)	5.3 (3.7)	−3.01	.005
Present Commitment	21.4 (5.7)	17.4 (5.2)	2.81	.007
Life Purpose (LAP)	47.8 (7.0)	41.1 (9.3)	3.15	.003
Existential Vacuum (LAP)	20.6 (5.5)	24.1 (7.3)	−2.08	.042
ADDITIONAL VARIABLES	**COMMUNITY**	**INSTITUTION**	***T* VALUES**	***P***
	(N=20)	(N=24)		
Perceived Well-Being (Revised)				
Psychological	36.3 (1.7)	31.2 (7.3)	3.27	.003
Physical	39.6 (7.4)	34.5 (8.6)	2.09	.05
Composite PWB	75.9 (8.4)	64.5 (13.1)	3.49	.001
Happiness (MUNSH)	41.1 (6.7)	33.0 (12.0)	2.81	.01

[a]Standard deviations are in parentheses.

TABLE 7-7 The Predictive Relationship of Personal Optimism to Happiness and Perceived Well-Being over a Two-Month Period

	PERSONAL OPTIMISM				
	TOTAL CONFIDENCE	SHORT-TERM	LONG-TERM	SELF-INITIATED	OTHER-INITIATED
Perceived Well-Being					
Psychological	.53***	.52***	.12	.44***	.24
Physical	.18	.06	.31*	.31*	−.07
Composite	.40**	.31*	.28*	.44***	.07
Happiness (MUNSH)	.41**	.41**	.10	.33*	.20

N = 44
*$p < .05$
**$p < .01$
***$p < .001$

The differences between the community and institution samples in various questionnaire measures are shown in the upper half of Table 7-6. It is quite impressive that the community elderly who had a more optimistic outlook also scored significantly higher in perceived well-being, present commitment, life purpose, but lower in depression and existential vacuum.

To further investigate the predictive validity of the FOS, we were able to administer two additional instruments to 20 community and 24 institution subjects from the same samples. These were the subjects who were available at the time of testing two months later, and who were willing to participate. The first additional instrument was the revised Reker and Wong's (1984) Perceived Well-Being Scale. The second additional instrument was the MUNSH Happiness Scale (Kozma & Stones, 1980). The mean differences between community and institution subjects for these two measures are shown in the lower half of Table 7-6. The most interesting aspect of our finding is that the total confidence scores obtained two months earlier are able to predict perceived well-being and happiness. These interrelationships are shown in Table 7-7. It is worth noting that personal optimism is significantly correlated with the psychological well-being subscale of the revised Perceived Well-Being Scale.

SUMMARY

The present findings replicate and extend earlier findings on the positive relationship between personal optimism and well-being. The main contribution of the FOS is that it measures three important dimensions of positive future orientation: density (number of anticipated events), extension (short-term versus long-term), and locus of initiation (self-initiated versus other-initiated). All three dimensions are importantly related to well-being. More systematic research is needed to investigate how these three dimensions are related to each other, and how they are related to different aspects of psychological and physical well-being.

Another contribution of the FOS is that it measures both the number of anticipated events and the average subjective confidence ratings. For the elderly, number of anticipated events was more important than the average confidence rating. The reverse might be true for other age groups. These two separate measures not only provide a more detailed analysis of the nature of personal optimism, but also permit a more global index in the form of total confidence ratings.

We have argued that the salutogenic approach to health care is preferable to the traditional disease model. We have also marshalled a wide range of evidence that implicates the salutary effects of personal optimism and the deleterious effects of its absence. Finally, we have developed a Future Orientation Scale that proves to be a good predictor of both physical and psychological well-being in the elderly.

According to the mosaic model (Reker, Chapter 3, this volume), successful aging is always the product of complex interactions of psychological, physiological and environmental variables. Here, we have identified personal optimism as one of the major psychological variables. Given its importance to health, and the paucity of data, systematic research on personal optimism is clearly needed.

The most fitting way to conclude this chapter is to look optimistically into the future. We foresee the development of a valid and reliable instrument to measure personal optimism. The Future Orientation Survey is a good starting point, but much work needs to be done.

Another promising direction of research is to explore the effects of personal optimism on physiological and biochemical systems. For example, it is tempting to speculate that personal optimism, as a cognitive-affective-and-a-goal-directed response, may release endorphine-like substances.

The most urgent task ahead, according to our opinion, is to identify the determinants of personal optimism. We have already alluded to a number of these determinants, such as self-efficacy, perceived instrumental options, dependence on God, etc. We anticipate that this line of research will yield a set of facts and procedures that may be used to instill hope that springs eternal.

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Appendix

FUTURE ORIENTATION SURVEY

Paul T. P. Wong and Gary T. Reker

We are interested in whether people differ in their future orientation. We are also interested in how confident people are that various future events will take place.

On the lines below, please indicate what desirable events you are looking forward to at this moment. Also, indicate the degree of your confidence or expectancy that each of these events will take place by writing down the appropriate number as indicated from the scale below.

1	2	3	4	5
not confident at all	slightly confident	fairly confident	very confident	extremely confident

For example:

I look forward to my son's visit next week. (4)

I look forward to completing the book I am writing. (2)

Please note that the numbers within parentheses indicate the degree of confidence

as described by the scale. For example, 4 means very confident that the event will take place.

AGE: _____ SEX: _____