Stress, Coping, and Health at Mid-life:

A developmental perspective

Carolyn M. Aldwin and Michael R. Levenson

Dept. of Human and Community Development

University of California at Davis

Chapter prepared for M. E. Lachman (Ed.), *The Handbook of Midlife Development.* New York: Wiley.

Mid-life is a time of contradictions. On the one hand, various developmental theories have depicted mid-life, like adolescence, as a time of *Sturm und Drang*. Men have been thought to experience a mid-life crisis, deriving from the recognition of their own mortality (Jacques, 1965). Theoretically, this leads them to make radical changes in their lifestyles, much like the character played by Kevin Spacey in the recent film, *American Beauty*. For women, mid-life has been hypothesized to be either a time of emptiness and depression, stemming from the empty nest syndrome (Borland, 1982) or from menopause (Sheehy, 1992), or, alternatively, a time of frantic overload from juggling the multiple roles of parent and caretaker for elderly parents, members of the so-called "sandwich" generation (Brody, 1990).   In contrast to these perspectives on the putative crisis of middle age, surveys routinely find individuals in mid-life to have fewer psychological symptoms (Aldwin, Spiro, Levenson, & Bosse', 1989; **Kessler, Foster, Webster, & House,** 1992), higher levels of marital satisfaction, better life satisfaction and mastery (Keyes & Ryff, 1999), and, in general, to be in fairly good health (Merrill & Verbrugge, 1999).

Resolving these seemingly contradictory findings is crucial to understanding adaptational processes in mid-life. Either the studies characterizing mid-life as a time of high stress are wrong, or people in mid-life have become expert copers, able to field much of what life tosses at them at this stage. An alternative hypothesis is that the much vaunted increase in individual variability in late life may actually begin to manifest in mid-life. For some individuals, mid-life is a time of struggle, being forced to cope with problems such as: job loss or failure to achieve critical goals; health problems, both of one's self and also those of parents, spouses, and siblings;

problems with troubled adolescents or infertility; or divorce, widowhood, and parental bereavement. For others, however, midlife may be a time of achievement and relative comfort. Examining the predictors of stressors and developmental changes in coping are critical for understanding adaptation in midlife.

As Siegler (1997) pointed out, however, there is a dearth of really good information on stress and coping processes in midlife. The purpose of this chapter is to review the information that does exist on life events, daily stressors, and coping processes, and their relationships to health outcomes. We will argue that mid-life is not necessarily a time of crisis for most people, but that it does normatively involve serious challenges which evoke changes in adaptive strategies. Surprisingly little data exists comparing the relationship between stress and coping to health outcomes in mid-life vs. early adulthood or late life. While most individuals in mid-life are quite healthy, it is in mid-life that sees the onset of chronic illness such as heart disease and diabetes for some. The role of stress in the onset of chronic illnesses is, at this point, not well documented. Therefore, we will propose three hypotheses in this chapter. First, that some of the much vaunted individual variability in chronic illness in late life begins to manifest in mid-life, and that stress and coping processes play a role in the development of serious illness in mid-life.

Second, the increased risk of serious acute and chronic illnesses in midlife necessitates a different attitude toward coping with stress. In particular, individuals may place more emphasis on anticipatory coping strategies which seek to prevent the occurrence or stressors and/or minimize their damage before they occur. Finally, loss-related events may constitute a new and serious challenges at mid-life. The process of coping with these losses, may force to individuals to seriously examine themselves, their assumption systems and their life in general, and may form a context for the development of wisdom. Certainly, this process sets the stage for the developmental tasks of late life.

STRESS AT MID-LIFE

In this section we will briefly review evidence for and against the existence of the various

crises which have been thought to be specific in mid-life, such as the mid-life crisis for men and menopause for women. We will the examine the stressors which are likely to become more frequent in mid-life, and/or have more of an impact if mid-life than in early adulthood. Finally, we will examine whether mid-life as a stage is more or less stressful than early adulthood or late life, by reviewing the few studies which do exist on age differences in stressful life events and daily stressors, as well as changes in those stressors over time.

Do Men Experience Mid-Life Crises?

In 1965, Elliot Jacques published an extraordinarily influential paper putting forth the proposition that there is a mid-life crisis. A psychoanalyst, Jacques based his hypothesis on the study of 310 artists, primarily in their 30's, who had recently had reason to confront their own mortality. This may have been occasioned either by the death of a parent or the death of a friend or sibling. Facing the possibility of their own mortality led these artists to re-evaluate their own life, and sometimes created a preoccupation with death, artistic impotence, and despair, although it also could lead to a deeper awareness and self-realization. The recognition that time is limited leads one to ask whether it is being spent wisely, and, not surprisingly, can result in changing unsatisfactory careers or relationships. Levinson (1978), in an in-depth, qualitative study of about 100 men, also concluded that there was a mid-life crisis. From these studies arose the "common knowledge" that men routinely experience a crisis in mid-life and make radical changes in their life styles.

There quickly arose challenges to this point of view. Costa & McCrae (1980) found little evidence for an increase in neuroticism in mid-life (which presumably should accompany any "crisis"). While they did find that some people were likely to experience crises in mid-life, they suggested that these individuals were likely to experience crises in their 20's and 30's, and that crises were not unique to midlife. Whitbourne (1986), in a review of this literature, characterized the mid-life crisis as a "pure figment" – presumably of white males' imaginations.

Farrell and Rosenberg (1981) extensively interviewed 350 middle-aged men and 150

younger men in their 20's and 30's. They concluded that there were a variety of paths through mid-life, and that there was little evidence for a mid-life crisis *per se*. However, recently, Robinson, Rosenberg, & Farrell (1999) re-interviewed these men. Looking back over their mid-life period, it became evident that mid-life, while not necessarily entailing crises, was certainly a time for re-evaluation. In particular, there appeared to be a shift in their personal narrative in late middle age (i.e., the 50's), in which many men reported a turning point, which may or may not have been "heroically" resolved but may have occasioned a long, slow decline. Interestingly, the younger men, now middle-aged Baby Boomers, quite freely used the term "mid-life crisis" to describe nearly any setback, either in their career or family life, which they experienced.

In part, much of this argument about whether or not a mid-life crisis exists stems from a fundamental misunderstanding of Jung's (1933) original work on development at mid-life. Jung argued that individuals develop *persona* in their adolescence and early adulthood which provide them with a means of relating to the adult world of work and family. While the self consists of both male qualities (*animus)* and female qualities (*anima),* part of the self needs to be suppressed in order to develop an adequate *persona*. In the gender-segregated time at which he was writing, a man was thought to develop his *animus*, focusing on competitiveness and career development, while a woman was thought to develop her *anima*, and focus on nurturing children. Regardless of which qualities were suppressed, Jung argued that they re-emerged at mid-life. The degree to which this occasioned a crisis reflected the degree to which the characteristic of the self had been suppressed. Thus, a person who had strongly repressed an essential part of his or her nature might well experience a "mid-life crisis" as that part attempts to reassert itself, but an individual who retained a fairly integrated balance between the *anima* and the *animus* would be spared such a crisis. Parker and Aldwin (1997) found partial support for this hypothesis in their cohort-sequential study of changes in masculinity and femininity. Individuals who were most likely to change from early adulthood to mid-life were those whose personality was most imbalanced in their twenties.

Thus, rather than debating whether or not there is a "mid-life crisis", it might be useful to

ask, "who has a difficult passage in mid-life, and why?" Given the bulk of the data, it is likely

that, for most men, mid-life is a time of achievement and satisfaction. However, for a certain

proportion of men, the passage through mid-life is not at all smooth. Some individuals may

develop significant problems and drop out of the labor force. Bossé, Aldwin, & Levenson

(1987) found that these "early retirees" were more likely to have mental health problems. Given

that the unemployment statistics do not count the long-term unemployed or the "discouraged

workers," it is unclear how many men experience employment problems in late mid-life, and are

just "holding on" until they can draw Social Security. Similarly, Chiriboga (1989) found that

men who were divorced in their 50's tended not to bounce back from this setback, and

experienced serious long-term sequellae. As Rosenberg et al. (1999) documented, there are

different pathways through mid-life, and studies are needed which increase our understanding of

the predictors of crises or of "long, slow declines," as well as positive adaptation in midlife.

Do Women Experience Mid-life Crises?

A similar pattern of contradictory research has been seen for the view that menopause

constitutes of mid-life crisis for women. It has long been thought that menopause sparked

clinical depression and other forms of psychosis and some popular psychologists still subscribe

to that point of view (Sheehy, 1992). Yet, population surveys show, for that most women,

menopause does not result in serious depression (McKinlay, McKinlay, & Brambilla,1987;

Matthews, 1992). However, the 10% of women who experience sudden drops in estrogen due to

hysterectomies, chemotherapy, or late-life children may experience higher levels of depressive

symptoms. There are clearly individual differences in the difficulties with which women go

through the menopausal transitions. Indeed, some women even speak of "post-menopausal

zest."

Interestingly, there are cross-cultural differences in ease or difficulty through which

women go through menopause (Avis, 1999). In general, in those cultures in which women view

menopause more positively, menopause tends to be relatively less problematic (see Beyene,

1986). Perhaps because in some cultures, a woman's status rises post-menopause. The only universal symptom appears to be hot flashes, caused by sudden changes in hormones which result in vasodilation. Even these appear to be mitigated by diet. For example, Japanese women appear to be less likely to suffer from hot flashes, perhaps because their diet contains fairly large amounts of tofu, which is high in phytoestrogens (Payer, 1991).

Another characteristic of mid-life which was thought to be highly stressful is the existence of the "empty nest" phase. In prior centuries, women often died a few years after the birth of their last child, but now only about a third of the adult life span is spent in raising children. Thus, there is a considerable stretch of time in which women are free to pursue other interests. Early research suggested that this was a potential crisis for women, but Borland (1982) showed that the empty nest was simply not problematic for most women. African-American women, for example, were likely to have been employed during their child-rearing years, and continued this pattern after their children left the nest. While Mexican-American women were less likely to have been in the workforce, they continued their traditional care-taking roles, either for unmarried children and/or grandchildren. The only group for whom this was potentially troublesome was for upper-middle class women who had no history of working outside the home and whose children were likely to delay child-rearing, thus delaying grandparenthood.

The majority of women of child-bearing age now work outside of the home, and presumably will continue to do so after their children are launched. For those women who have opted out of the workforce to raise their children, there is increased acceptance of "off-time" education, with more women than ever returning to school in order to increase their job market potential. Moen & Wethington (1999) do note that divorce may either precede or follow a return to school. Nevertheless, the empty nest phase does not appear to appear to constitute a generalized crisis, but it may evoke a re-evaluation of life goals in women.

Finally, the crisis that women in mid-life are currently thought to face is role overload from being a member of the "sandwich generation." This pertains to the idea that mid-life is a time of great stress because individuals (mainly women) are facing simultaneous demands of

caring for both adolescents and frail parents, often while juggling the career demands. Depending upon the study, something like a quarter to a third of middle-aged women have the demographic potential to fit this profile, that is, have at least one living parent, an adolescent living at home, and paid employment outside the home (Bengston, Rosenthal, & Burton, 1996). However, most elders are relatively healthy up until their late seventies, by which time their grandchildren have usually reached adulthood. Consequently, only 7% of adults find themselves simultaneously caring for both elders and adolescents (Rosenthal, Matthews, & Marshall,1991). However, it is surprising that more individuals in mid-life (slightly over a quarter) identify themselves as caregivers for older relatives than do those in later life, of whom only 15% say they are caregiving for an elderly relative or friend). However, Papalia, Camp, & Feldman (1996) believe that the AARP survey on which this data are based underestimated spousal care. Indeed, in dealing with older dyads, it is often difficult to determine who is the primary caregiver, and one could characterize older couples as having mutually interdependent relationships.

Still, over half of the women with a surviving parent will spend at least some time in a caregiving role (Himes, 1994). Typical caregiving tasks include helping with shopping and transportation, household maintenance, personal care, handling finances, and supervising medications, and average about four hours a day. While daughters typically take on much of the care, especially for personal assistance, sons also provide a significant amount of care, often for transportation and financial tasks (Stone, Cafferata, & Sangl, 1987). While caregiving can be an arduous, stressful task leading to burnout (Zarit, Todd, & Zarit, 1986), there are often perceived benefits of caring for a loved one. For example, Schulz, O'Brien, Bookwala, & Fleissner (1995) report that half of spousal caregivers do not report caregiving as being a stressful experience. To our knowledge, comparable data do not exist for mid-life caregivers of parents, but Bengston et al. (1996) point out that adult child-parent helping relationships are typically characterized by reciprocity, except when an elder is very frail.

In summary, it is incorrect to identify mid-life as a time of crisis. While there are

normative changes, most individuals appear to take these pretty much in stride. However, there are challenges that can occur at mid-life which may cause individuals to make significant changes in their lives. Perhaps Clausen's (1990) observation may be most accurate. He suggested that mid-life is a psychological turning point, which may include new insights into one's self, a loved one, or a life situation which can lead to significant changes or redirections in life. Wethington reviewed a series of papers she and her colleagues conducted on turning points at midlife (Moen & Wethington, 1999). Interestingly, they found that women were more likely than men to report turning points at mid-life, primarily in association with negative life events. Further, they found that severe events which were successfully resolved were most likely to be associated with psychological growth. Thus, it may be worthwhile to examine life events which are common to mid-life.

Common Life Events

　　　　Parental bereavement. Perhaps the most normative stressful life event of mid-life is the death of a parent. Given that two-thirds of deaths now occur after the age of 65 (Merrill & Verbrugge, 1999), it is becoming increasingly common for adults to experience the death of their parents starting in mid-life. Indeed, in the MacArthur Study of mid-life, Larry Bumpass observed that individuals usually begin mid-life with both parents alive, and exit mid-life with one or both parents dead (Lachman, 1998, personal communication). Data from Canada appear to bear out this observation. Nearly all (85%) of men and women in their early 40s have at least one living parent; this number drops to only a fifth for individuals in their 60s (Martin, Matthews, & Rosenthal, 1993). In the U. S., half of all adults have lost both parents by their mid-fifties, and 75% by their early 60's (Winsborough, Bumpass, & Aquilino, 1991; cited in Papalia et al., 1996).

　　　　While relatively few studies exist of bereavement at mid-life, the few that do exist suggest that this event is less stressful than other types of bereavement, especially for men (Moss & Moss, 1989). In part, this may be because it is considered to be normative. Grandparents die,

and then parents. Women, especially those who were involved in caregiving, may be more likely to experience grief. Individuals who are most likely to be grief stricken are those who still lived with their parents; presumably the parents' death will result in greater disruption to their lives (Parkes, 1972?).

Still, death of a parent is undoubtedly a major turning point for most people. As mentioned earlier, it may force individuals to confront their own mortality, leading to a re-evaluation of their own lives. With the death of one parent may come greater responsibility, not only for their own lives, but for the remaining parent. The widowed parent is generally in need of greater support, and may desire more frequent contact with children and grandchildren. While most ill elders prefer to rely on their spouses for caretaking, the absence of the partner may result in greater demands on their adult children.

The death of a second parent may be even harder, as the adult child now becomes an "orphan". While relatively little hard data exist, it is likely that losing the buffer of the parent generation leads to a shift in identity and perhaps in values and behaviors. Moss and Moss (1989) provided some interesting quotes for a few of their respondents from their study of mid-life parental loss.

> I'm suddenly the replacement for her generation. It's like going from the middle level to the senior level in the matter of a moment. Without doubt I feel a greater sense of finality in life. When she was here I felt that there was a cushion between me and the end of life (p. 108).

> There are things that are important for my professional life since she got very sick. I made major changes in my work to increase my own professional security. Perhaps the prospect of losing her had to do with that (p. 104).

Some studies do report serious emotional distress following death of a parent (Scharlach, 1991), with nearly half reporting physical declines (Scharlach & Fredriksen, 1993). Interestingly, though, the latter study found that many individuals also reported psychological growth from the death of their parents. In many ways, it forces one to finally "become an adult,"

and individuals often reported that people increased in self-confidence and maturity, and learned to value personal relationships more.

Death of a spouse. We tend to think of widowhood as something which occurs in late life. For women, however, widowhood is fairly common in mid-life. An early study by Troll (1973) pointed out that half of all widows are under 60 years of age, and most of these are in their 50's. Currently, one third of all women are widowed by the age of 65. The statistics are very different for men. It is not until the age of 75 that a third of the men become widowed (Atchley, 1997).

Spousal bereavement often causes considerable emotional distress. Widows and widowers have higher rates of depression than do married people. Many people, especially women, experience considerable economic hardship (Lopata, 1979). There is much debate over whether widowhood is more difficult for men or for women, with some studies showing higher rates of distress among women, and others among men. Lieberman (1996) believed that, while women may more openly express grief, men may also feel a profound sense of loss, as if they have "lost their anchor". It is clear that the course of widowhood is very different for men and women. While men are at higher risk for coronary events a year after widowhood, they are also much more likely to remarry than are women (Parkes & Weiss, 1983). The majority of men are likely to marry within a year, while only about one third of women remarry over the next few years.

However, as Lieberman (1996) pointed out, widowhood can also be a time for growth. Women who had subordinated their lives to their families may now find themselves free of such obligations, and can rediscover aspects of themselves, long-dormant abilities that were abandoned in their 20's. About a third of the widows Lieberman studied exhibited such patterns of growth, returning to school, finding new jobs, and in general making positive adaptational changes. As one woman said: "I've grown so much. . . I see myself now as a much more effective person. I'm also more serene, more generous, and calmer. I've learned to accept things much more gracefully, and I've taken on disputes and won them" (Lieberman, 1996, p. 142).

Interestingly, far fewer of the men felt that they had grown from being widowed, although, surprisingly, more men then women reported having suppressed part of their personalities for their marriage.

Lieberman identified seven factors that lead to post-bereavement growth. Women who expressed a sense of dissatisfaction with their previous life often became *introspective* in their attempts to make sense of their lives. This was often spurred by *a sense of their own mortality* and the realization that there was a limited time left to their lives. Thus, many women embarked upon a *life review and re-evaluation*, and actively sought out neglected aspects of themselves. Women who reported post-bereavement growth also *searched for personal meaning,* had *more realistic evaluations of their marriage* and were less likely to idealize their spouse. They also perceived the *loss as an opportunity for growth.* Interestingly, they were also *more depressed* and expressed more emotional distress, suggesting that their distress may have been a catalyst for change.

Lieberman (1996) is quick to point out that growth is not necessarily related to good adjustment, and women who did not go on an identity search did not necessarily experience worse (or better) outcomes than those who did. "Good adjustment and growth are separate and independent paths" (p. 151). As one woman remarked, "I've learned more about my strengths and I've realized that I can take care of myself. I've even started going to classes and learning about business affairs. In spite of my grieving, I can feel myself growing. I have been enriched by my despair in ways I never dreamed possible" (p. 154).

Divorce. In contrast, divorce in mid-life is relatively rare. Only 13% of divorces occur over the age of 40 (Chiriboga, 1989). While there is some evidence that men and women in mid-life are more dysphoric in the earlier stages of divorce than younger adults, most eventually rebound after three to four years, and women actually may have slightly higher morale (Chiriboga, 1989). However, upper middle-class women who experience significant financial declines may be particularly bitter and depressed, even several years after the divorce (Wallerstein, 1986). Interestingly, men in their 40's may rebound from divorce fairly quickly,

but men in their 50's may have a much harder time (Chiriboga, 1979b), as do women of a similar age (Botwinnick, 1973).

Nonetheless, there is some evidence for stress-related growth after marital separation and divorce. Helson & Roberts (1994) examined correlates of ego development during mid-life in their sample of the Mills College women. There was no general age-related increase in ego development. However, women who had used accommodative styles to cope with serious problems such as divorce tended to have higher levels of ego development.

Thus, the most common types of serious life events in mid-life appear to be death of a parent and widowhood. While divorce is relatively rare, it may have more devastating effects, especially for individuals in late mid-life. Interestingly, these loss events may occasion maturation and psychological growth, which is a theme to which we will return in a later section.

What is not clear from the examination of specific types of crises and life events, however, is whether mid-life is a more or less stressful life stage than either early adulthood or late life. The next section will examine more general types of life events and minor stressors, such as daily hassles.

General Life Events

Relatively few studies have explicitly compared whether the number and type of stressful life events change with age. Early correlational studies suggested that the number of life events decrease with age (Aldwin, 1990, 1991). However, standard life events inventories are weighted toward events which are more likely to happen to younger individuals, such as graduations, marriages, divorces, beginning new jobs, having children, and the like. Aldwin (1990) developed an inventory that was specifically designed to tap the types of life events which are more likely to occur to middle-aged and older people, such as death of a parent, divorce of a child, institutionalization of a spouse, and the like. She found that there was no significant correlation with age in a sample ranging from mid-life through late life, although health-related life events did tend to show increased frequency in late life (Aldwin, 1991).

Using data from the San Francisco Transitions Study, Chiriboga (1997) also found that there were no differences in the number of life events between individuals in mid-life and late-life, but did find that young adults reported more life events. Given the fact that young people are initiating major new roles in life, it is not surprising that their lives are more unsettled. Interestingly, young adults also reported more positive events.

Chiriboga (1997) also presented longitudinal change in stressful life events over a 12-year period. However, the longitudinal data did not suggest a strict linear decrease with age. Rather, the differences between the cohorts were maintained, and the number of events fluctuated over time, suggesting both cohort and period effects on the occurrence of stressful life events. In a six-year longitudinal study, Yancura, Aldwin, & Spiro (1999) found that there was a non-linear change over time, with the number of self-reported life events increasing until about age 65, and then decreasing into later life.

In summary, from these few studies, it would be very difficult to argue that one stage of life is more stressful than another – at least in terms of major life events. The type of life events may reflect developmental stage, with younger individuals reporting more gains in social roles, and older individuals reporting more losses. However, it is not at all clear that the number of life events varies. In part, younger adults may be more comfortable with the construct of stress, and thus be more willing to report stressful life events, which may be one explanation for Chiriboga's (1977) failure to find decreases in stressful life events with age, and the maintenance of cohort differences. Clearly, more work is needed to further examine age, cohort, and period effects in the experience of stressful life events.

Daily Hassles

In contrast, daily hassles or microstressors show clearer developmental patterns with age (and life stage). For example, Aldwin, Sutton, Chiara, & Spiro (1996) found that both the frequency and type of hassles changed with age. Overall, older men reported fewer hassles than middle-aged men. Not surprisingly, older men were less likely to report problems with work or

with children, and although they were more likely to report health-related hassles, the increase of

these hassles did not fully offset the decrease in the work and parenting domains. Chiriboga

(1997) also found that older adults reported more health-related hassles, but that other types

clearly decreased with age, such as problems with parents, children, spouses, work, relatives, and

money. Despite the increased responsibilities of mid-life, it is notable that the middle-aged

group in Chiriboga's sample was never higher in the number of hassles reported than either

younger or older groups.

Summary

Despite a fairly long history of trying to characterize mid-life as a time of crisis and

heightened stress, there is little support for this in the literature. Putative crises turn out to be less

frequent and/or less severe than initially thought, and there is little indication from the general

stress literature of any increase in either stressful life events or hassles. However, this does not

mean that mid-life is not a time of change. As we have seen, bereavement becomes more

frequent, with most individuals in mid-life losing one or both parents, and a large proportion of

women becoming widowed. While divorce is relatively infrequent, there are some indications

that divorce may be more problematic for men and women in their 50's, as is job loss. Thus,

mid-life, while not necessarily a time of crisis, can be a time of change. Further, there are also

suggestions in the literature that this change, although painful, can engender significant periods

of growth, and perhaps set the stage for the development of wisdom in late life, depending, in

part, on how individuals cope with these problems.

COPING AT MID-LIFE

There are three basic views in the literature on developmental changes in coping in

adulthood. Theories emphasizing decrement suggest that coping worsens with age; those

emphasizing increments suggest improvements in coping ability with age; finally, those

emphasizing stability suggest little or no intrinsic change with age.

Gutmann (1974) was an early proponent of the decrement theory. Based on a cross-cultural study using Thematic Apperception Tests (TATs), he proposed that coping in young adulthood is characterized by active mastery, coping in mid-life by passive mastery; and coping in late life by "magical" mastery. Young adults tended to relate stories about the pictures in the TATs which were full of optimistic action, while middle-aged adults were more cautious and limited. The old adults often told stories which were not directly related to the picture at hand, or those in which problems seemed to resolve themselves, hence "magical" mastery.

In contrast, Vaillant (1977), using qualitative analysis of interviews on college-educated men, argued that there was a incremental or positive developmental shift, with young adults using "neurotic" or "immature" defense mechanisms such as denial and projection, and middle-aged individuals "mature" defense mechanisms such as sublimation. He replicated this in a sample of lower class men (Vaillant, Bond, & Vaillant, 1986), but did not find similar developmental trends in a sample of Terman women who were administered a standardized questionnaire on defense mechanisms (Bond, Gardner, & Siegel, 1987). Costa, Zonderman, & McCrae (1991), however, did find that the more problematic defense mechanisms were negatively correlated with age in three samples of men and women, while repression/denial mechanisms were positively correlated with age. Finally, Diehl, Coyle, & Labouvie-Vief (1996), in their study of age and gender differences in defense mechanisms, found that older adults displayed more impulse control than did younger adults, who displayed more aggression.

In contrast to defense mechanisms, studies using standardized coping checklists find weaker relations with age. Using this type of quantitative methodology, McCrae (1982) argued that there was little or no age-related change in coping in adulthood that could not be attributed to differences in the types of coping. While older adults may use less problem-focused coping, this may be due to the fact that they are more likely to be coping with problems such as bereavement and chronic illness, for which problem-focused coping may be less useful. However, other studies have also found that older adults may report less problem-focused coping, resulting in the perception that they are more "passive." However, they also may use

fewer escapist strategies, such as alcohol or drug use (for a review, see Aldwin et al., 1996).

Thus, depending upon the measures and the sample used, older adults could be considered either better or worse copers than young adults, or perhaps coping simply does not show developmental change in adulthood. Aldwin et al. (1996) set out to address this conundrum using both quantitative and qualitative methodology in over 1,000 interviews with middle-aged and older men. Middle-aged men did report more coping strategies on the coping checklists, especially problem-focused coping, than did older men; however, few age differences were seen with the qualitative, content analysis of the coping interviews. Further, there were no age differences in the perceived efficacy of their coping strategies. Aldwin et al. examined the interviews to reconcile these differences, and discovered that the coping of older adults could be described in terms of energy conservation. For example, when faced with a flood in the basement, a middle-aged man might seek to analyze the problem, go to the hardware store to obtain the necessary equipment, and attempt to fix the problem himself. An 80-year-old man, in contrast, is unlikely to venture into a flooded basement. However, he may very well call a son or a plumber to come and fix the problem. On a coping inventory, the middle-aged man would have checked off three strategies, while the 80-year-old would have only checked one. In the content analysis of the interviews, however, both men would have simply been coded as using problem-focused strategies. Note that both strategies were equally effective, in that both resulted in fixing the plumbing problem. However, the middle-aged man expended more physical energy.

Thus, we propose that these disparate findings in the literature on coping in adulthood can be integrated through an "energy conservation" model of changes in coping strategies with age. In young adulthood, individuals have a tremendous amount of energy but relatively little experience. Thus, it is possible that younger adults use more "active" strategies – but not necessarily more efficacious ones. Further, it is my observation that young adults tend to be more unrealistic in their beliefs in their ability to affect the situation.

With age, however, people may become more effective in their coping efforts. Many

problems are self-limiting, and sometimes taking a "wait and see" attitude is most effective. By middle-age, adults may be more realistic about their ability to effect changes in situations. A good example of this is a song, popular in the 1960s among young Baby Boomers, in which the singer croons, "I'm gonna make you love me." By mid-life, Bonnie Raitt bemoans the fact that "I can't make you love me, if you don't." While this may be interpreted as Gutmann's (1974) shift from "active" to "passive" mastery, it actually may simply reflect increased realism in understanding the limits of one's own actions. This does not necessarily mean that middle-aged adults are "worse"copers – indeed, they may be more efficacious in their ability to know what strategies work, in avoiding ineffective strategies, and in being more judicious in the expenditure of their efforts.

The current coping strategies checklists tend not to tap developmental trends in coping very well. Given that such coping strategies tend to reflect environmental contingencies more than personality (Rott & Thomae, 1991), it is also possible the biggest developmental change is in a greater reliance on management strategies rather than coping processes per se. By management strategies is meant the ability either to avoid or to minimize the occurrence of problems (see Aldwin & Brustrom, 1997), which has also been called anticipatory or pro-active coping (Aspinwall & Taylor, 1998). Rather than having to cope with a problem, it makes more sense, from an energy conservation viewpoint, to prevent the occurrence of a problem and/or minimize its effects. For example, it is more efficacious to ensure that a gas tank is full before one starts a trip than to have to cope with running out of gas in the middle of the journey. This idea would help explain the curious finding mentioned earlier that hassles decrease with age, despite the fact that mid-life is a time of great responsibility. We hypothesize that individuals in mid-life have developed better management or anticipatory coping strategies which decrease the probability of experiencing those types of daily stressors that can be avoided with a little forethought. At this point, however, there are no studies to support this hypothesis, but we believe that it is a plausible one.

STRESS, COPING AND HEALTH AT MID-LIFE

General issues in health at mid-life have been reviewed in this volume by Spiro (in press). Thus, we will focus on the relationship between stress, coping, and health at midlife.

Stress issues are highly salient to health in mid-life. Kennedy & Comko (1991) found that middle-aged women ranked stress as their number 1 health concern. Of the various psychosocial correlates of self-rated health, Thomas (1997) found that stress was most strongly correlated with health in a sample of middle-aged women. Compared to the healthiest quartile, the least healthy quartile reported more problems with their marriage, financial strain and worries about their children. They were also less likely to report perceived rewards from their relationships with their husbands and the children. These studies supported earlier studies on the salience of relationship stress for midlife women by Costello (1991) and McKinlay, Triant, McKinlay, Brambilla, & Ferdock (1990).

However, none of these studies compared whether relationship stress was more important for health at midlife than for early or later life. To our knowledge, there are no studies specifically examining whether individuals in mid-life are more or less vulnerable to the effects of stress, or whether coping is more or less protective at this stage of life. However, based upon indirect evidence, we will argue that stress may be linked to the development of chronic illness in mid-life.

We do know that individuals in late life are more vulnerable to the physiological effects of stress. Older individuals are more vulnerable to heat stress, take longer to heal from injuries, and in general have a harder time returning to homeostasis after physical insults.   We also know that the chronic diseases of old age, such as diabetes and cardiovascular disease, start manifesting in some individuals in mid-life, especially those in their 50's and 60's (for reviews, see Spiro, this volume; Merrill & Verbrugge, 1999). Further, some risk factors appear to have stronger effects in mid-life than they do in late life, in part because of survivor effects (Kaplan, Haan, & Wallace, 1999). For example, individuals who are more vulnerable to the effects of smoking, for whatever genetic or environmental reasons, are likely to succumb to smoking-

related illnesses in mid-life.

However, it is also true that, due to immune system maturation, older adults may be *less* vulnerable to many kinds of infections than are younger adults (Miller, 1996). That is, the longer one has lived, the more infections one has been exposed to, and thus the greater the number of memory and mature T cells which encode information as to how to fight off specific illnesses. Very old adults are nonetheless more susceptible to some types of infections such as pneumonia. In general, though, it is safe to say that infectious illnesses are more frequent in early adulthood, and chronic illnesses more prevalent in mid- and late-life.

Thus, it would be interesting to determine if there is a three-way interaction between age, stress, and type of illness. For example, we know that there is a relationship between stress and cardiovascular disease (for reviews and interesting possible physiological mechanisms, see Allen & Patterson, 1995; Benjamin & McMillan, 1998). However, it is the very rare twenty-year-old who suffers a stress-related myocardial infarction, although it is likely that risk factors such as cholesterol levels and blood pressure may temporarily increase. By mid-life, however, the cumulative insults of these risk factors may render an individual susceptible to a myocardial infarction, especially for physical stressors. For example, it is not unusual for an middle-aged man to suffer his first heart attack while engaged in unaccustomed exertion, such as shoveling snow. Psychosocial factors such as job stress may also play a role (e.g., Karasek & Theorell, 1990). By late life, vulnerability to so many different types of illnesses has increased so much that stress may result in a plethora of conditions. For example, while stress has been seen as a risk factor for stroke (Bjorntorp, 1995), it is probable that this association is stronger in late life than in mid- or early life.

It is also interesting to speculate that some of the inconsistencies in the stress-illness literature may be due to age differences in the effects of stress. In terms of chronic illness, it is possible that an individual's "reserve capacity" for coping with physical stressors may decrease, although the same is not necessarily true for psychological stressors. The shift from coping strategies to management strategies hypothesized earlier might well be in response to the

recognition that exposure and/or over-reaction to stressors is hard on the body. Some of the men

in the Aldwin et al. (1996) study specifically mentioned learning not to get angry or too worried

once they had developed problems such as hypertension. Studies are needed which specifically

address these issues in order to understand what effects stress may have in mid-life, and whether

it is involved in the development of chronic illnesses at mid-life.

STRESS, COPING, AND WISDOM AT MIDLIFE

While stress undoubtedly has adverse effects, it would be a mistake to think that all of the

effects of stress are negative. As we have seen earlier, many of loss events at midlife, although

painful, were accompanied by a sense of maturation and personal growth.

There is a growing literature on the positive aspects of stress, sometimes called "post-

traumatic growth" (Tedeschi, Park, & Calhoun, 1998) or "the perceived benefits of stress"

(Aldwin & Sutton, 1998). While coping may moderate the effects of stress, being able to

perceive (and act upon) a "silver lining" may result in long-term effects which can be positive.

These positive changes may include material gain, changes in perspective, stronger social bonds,

increased coping skills, mastery and self esteem (Aldwin & Stokols, 1988), increased self-

knowledge (Beardslee, 1989), ego development (Helson & Roberts, 1994), and perhaps wisdom

as well (Aldwin, 1994). Whether one calls it "learning from one's mistakes", the "school of hard

knocks," or "sadder but wiser", it has long been recognized that, even though certain experiences

can be extraordinarily painful, they may nonetheless have maturing effects.

Aldwin & Stokols (1988) proposed a deviation-amplification model, based on

Maruyama's (1963) dynamic modification to von Bertalanffy's (1969) systems theory. Most

standard systems theories and stress theories posit a homeostatic model – that is, stress results in

a perturbation in a baseline state, and coping serves to return the organism to that baseline.

However, Maruyama argued that there were both deviation countering mechanisms (which

returned organisms to baseline), and deviation amplification mechanisms, which resulted in

long-term change. Aldwin and Stokols argued that whether or not these long-term effects were

positive or negative depended on a variety of individual and contextual factors, including chance.

A number of researchers have been working along parallel lines, and the results have been remarkably similar across studies (for reviews, see Aldwin & Sutton, 1998; Park, 1998; Tedeschi, Park, & Calhoun, 1998). For example, an early study by Affleck, Tennen, Croog, and Levine (1987) found that men who perceived benefits from having a myocardial infarction had better survival at a five-year follow-up. Presumably these men had made improvements in their diet and health behavior habits, which may have aided in their survival. More recently, Stein, Folkman, Trabasso, & Richards (1997) showed that caregivers of AIDS patients who expressed positive appraisals of their experience were less likely to be depressed and showed more positive outcomes 12 months after bereavement Interestingly, perceiving benefits from stressful situations can be differentiated from "making meaning." Davis, Nolan-Hakama, & Larson (1998), in a study of individuals coping with the loss of a family member, found that making meaning was associated with better short-term outcomes, but perceiving benefits was associated with greater long-term outcomes.

This phenomenon may be more widespread that formerly thought. Aldwin, Sutton, & Lachman (1996), in a series of studies, found that the majority of individuals could perceive long-term positive outcomes to even major low points in their lives, although most individuals acknowledged that often the effects were mixed. While some might consider this to be a form a denial, it is interesting that the types of long-term effects individuals reported often made a great deal of sense. For example, one man's low-point was the burning down of his apartment building one snowy winter. The positive outcome from this experience was that it spurred him into action to find a new and much better home for himself and his family. This would be considered a material gain. One woman spoke of the coping skills derived from having to nurse her alcoholic ex-husband through his stroke – skills which came in useful when her son suffered head trauma in an auto accident. Others spoke of an increased sense of mastery, almost disbelief at what they could accomplish under extremely trying conditions. Changing values and perspectives, such as rediscovering the value of health and family is fairly common after a brush

with death.

The notion that development exists in adulthood is still a matter of some debate, in part because it is difficult to show a universal developmental progression, and there are clearly individual differences in the life course (cf., Ford & Lerner, 1992). Langer et al. (1990) have suggested that development in adulthood follows a nonsequential pattern.

Following this, Aldwin (1994) argued that stress provides a context for development in adulthood. The rationale is fairly simple. As mentioned earlier, stress can be a challenge that encourages the development of certain coping resources. More fundamentally, however, stress creates uncertainty, and, according to Acredolo and O'Connor (1991), uncertainty is the *sine qua non* for development to occur. For example, the development of more complex schemata in the Piagetian tradition relies upon uncertainty – if one does not question the truth or rightness of one's current cognitive schema, then there is no need to change it. It is only when discrepancies occur that one is forced to re-examine these schemata.

Epstein (1991) has argued that trauma can create a fundamental change in an individual's identity. He referred to trauma as the "atom smasher" of psychological research, in that it often destroys individuals' cognitive schema about not only how the world works, but also their place in it, their own sense of identity. Traumatized individuals often speak of "picking up the pieces", of having to recreate themselves. This entails fundamental self-reflection – a very difficult and often very painful task. It can be argued, though, that self-reflection is the basis for the development of wisdom.

The past ten years has seen a rebirth of interest in the construct of wisdom (for reviews, see Birren & Fisher, 1990; McKnee & Barber, 1999). Psychologists have tended to define wisdom in terms of practical knowledge (Baltes & Smith, 1990), and cognitive and emotional complexity (Labouvie-Vief, 1990), although recently Baltes & Staudinger (2000) have acknowledged the importance of social judgement or justice to the central construct of wisdom as well. However, McKee and Barber (1999) have cogently argued that wisdom involves seeing through illusions. Certainly, self-delusion is a major source of unwise action, and it would stand

to reason that the ability to see through illusions – whether generated by oneself, one's friends (or enemies), or the culture as a whole – is the basis of wise decisions.

Stress often forces us to examine our assumptions and the validity of our perceptions. While stress may engender more delusional thinking or actions, these will undoubtedly make a situation worse in the long-run. We learn through hard experience that what we thought was truth was illusion. For example, in the Aldwin et al. (1996) study, one woman's low point was her divorce. She firmly believed in her twenties that if she was the perfect wife and mother, she would never be divorced. Unfortunately, what she believed was perfection was not what her husband apparently wanted, and she and her husband divorced. This woman learned that her belief system, or cognitive schema, about how marriages "worked" was an illusion – but she remained embittered and disillusioned, and was not able to "pick up the pieces" and construct a more realistic but positive image of herself and the world.

Baltes (1987) has long argued that developmental in adulthood consists of a balance of gains and losses. However, the underlying assumption has been that developmental consists of gains which may or may not compensate for losses, with the corollary assumption that loss is bad. However, as we have reviewed in this chapter, it is a mistake to think that all loss is necessarily bad, or that even painful losses do not entail some benefit. Thus, if trauma challenges our assumptions and forces us to abandon unrealistic or even damaging assumptions about the world, then the loss of those assumptions is a good thing. Even losing loved ones, through divorce or bereavement, as painful as this might be, still avails us the opportunity engage in compassionate behavior such as caregiving for a dying loved one, or restraining angry remarks about one's ex-spouse for the sake of the children.

Taken further, one could even argue that loss is perhaps a necessary (but not sufficient) condition for development. Neurophysiological development in childhood requires pruning competing neurological pathways; gaining childhood roles necessitates abandoning infant roles, and so forth. It is true that in early adulthood there are many more role gains than losses. Nonetheless, the act of choosing a particular career or mate necessarily entails the loss of other

opportunities. Indeed, it is the recognition of those losses which may underlie the role of re-evaluation in mid-life. Re-appraising those losses in terms of commitment may be one component of maturity.

One of the most difficult things to understand about Erikson's (1950) construct of ego integrity is that it involves the understanding and acceptance that one has lead the only possible life that one can lead. For those of us who have not as yet reached this stage, this is very difficult to comprehend. We regret our mistakes, we wonder what would have happened if we had married someone else or went into a different line of work. However, the choices and experiences that one has had constitute one's self; therefore, in order to accept oneself, one must understand the process through which one became what one is.

Levenson and Crumpler (1996) reviewed ontogenetic and sociogenetic approaches to adult development, and argued for a third way, which they termed a "liberative" model of adult development. Essentially, this advances the idea that adult development is constituted by progressive freedom from biosocial conditioning. The self is the primary product of biosocial conditioning. However, rather than the "self", we might better characterize this as what Jung would call the "persona", or false self. The persona can be thought of as a series of accretions – one gains social roles, material possessions, social position, habits, and assumptions about the world. Extending McKee and Barber's (1999) theory of wisdom, these accretions can be seen as the basis of illusion, and, according to Buddhist philosophy, illusion (and attachment) are the origin of suffering.

For example, people who abuse alcohol or methamphetamine often have illusions as to their ability to withstand the harmful effects of those substances. These illusions blind them to the very real problems that are generated by their behaviors. Only when the problems become so bad that they are impossible to ignore – usually because they entail horrendous suffering – are such people finally forced to confront their illusions. According to McKee and Barber (1999), "we learn to see through illusions only by suffering through them" (pp. 154-155).   While this is an extreme example, this principal can be extended to most areas of life.

Theories of wisdom also generally specify things that are gained. Birren and Fisher (1990, p. 326) define wisdom as the integration of the affective, conative and cognitive aspects of human abilities in response to life's tasks and problems. Wisdom is a balance between the opposing valences of intense emotion and detachment, action and inaction, and knowledge and doubts.

The cognitive component can be loosely defined as perspicacity or insightfulness, which is based upon both a knowledge base and higher order cognitive processes, such as the ability to comprehend complex constructs and to use dialectical and relativistic modes of thinking (Labouvie-Vief, 1990). However, McKee and Barber (1999) point out, perspicacity is based upon seeing through illusions, which involves abandoning assumption systems and aspects of one's persona which are destructive and unnecessary. Thus, practical experience is useful to the extent that one has gained competence but also has learned to avoid error.

The affective component not only includes emotional complexity (Labouvie-Vief, 1990), but we would argue that it also includes emotional balance, which is based on self-knowledge. Emotional balance refers to the capacity to examine the sources of emotions, which in turn means than one tends to become less upset when negative things occur, or not to become overwhelmed by positive experiences. We tend to think of neuroticism in terms of negative affect, but Eysenck (1986) explicitly defined neuroticism as strong, easily aroused emotions – without regard to their valence. And neuroticism is one of the better personality predictors poor mental and physical health in adulthood (Friedman & Booth-Kewley, 1987).

Conation refers to "volition and desire", or motivation. For some, wisdom entails of necessity a moral and ethical aspect (Sternberg, 1998). In addition to higher level moral reasoning (Kohlberg & Ryncarz, 1990), wisdom entails integrity, compassion and generosity, which, in some cultures, is referred to as "character."   According to Langer (1989), most of our prejudices derive from unexamined assumptions and premature cognitive commitments, which are, after all, the basis of illusion. Langer talks about "decreasing prejudice through increasing discrimination," learning not to see people through stereotypes. To the extent that one learns to

see through one's illusions, one is better able to see other people as simply other humans with whom one shares a common humanity. Further, the persona, with its layers of accretions, can also be considered to consist of desires, for status, for material goods, for attention from others, with can get in the way of compassionate behavior. For example, a young child can become overly attached to a toy, and refuse to share it. From the perspective of an adult, a toy is simply a toy, and should be shared. The "undeveloped" adult can become overly attached to, say, status at work, and refuse to share credit for a project. From the perspective of a developed adult, a project is simply a project, and credit should be shared.

Thus, wisdom entails not only the development of capacity, but also loss of the false self, with its illusions and pointless desires. Indeed, wisdom is not possible unless this false self is lost. In other words, there is no development without loss. Stressful life events form the context through which this dialectic between development and loss occurs. Coping can entail the development of self-knowledge, the loss of destructive behaviors and cognition, and an increase in compassion and empathy, or it can entail just the opposite. As we have seen, in mid-life losses become more common. One loses parents and sometimes spouses, children grow up, and careers may pall. The stress from these losses may have devastating effects and result in the development of chronic illnesses. However, it is also through these losses that one may start to develop wisdom.

SUMMARY

With reference to the French Revolution, Dickens once wrote, "It was the best of times, it was the worst of times." In some ways, this is also applicable to mid-life. When we first began writing this chapter, our initial "take" on mid-life was most positive. In mid-life, one has "suffered through ones' illusions," and finally learned to avoid some of the worst mistakes of youth. One also enjoys increasing responsibilities, especially the generative ones involved in mentoring the next generation and in providing a bridge between generations. While everyday demands were great, so too were the rewards. However, then the stressors of midlife "hit." Parents died, siblings became gravely ill, job demands increased seemingly exponentially, and

mid-life became "the worst of times." It was thus interesting to find so many examples in the

literature of stress-related growth at mid-life, even when those stressors constituted losses.

McKee and Barber's (1999) theory of loss of illusions as development of wisdom formed an

interesting bridge between the loss-related stressors and personal development.

　　　　While much of this chapter is admittedly speculative, we have attempted to synthesize

what is known about stress, coping, and health in mid-life, and outline important areas for future

work. In particular, we need to determine what role stress plays in the development of chronic

illness at midlife, and whether is a shift towards better management strategies to avoid the ill

effects of stress. Finally, we are beginning to approach a consensus that wisdom is a multi-

faceted construct entailing, cognition, conation, and emotion. However, the developmental

processes through which wisdom develops still need to be investigated. We have suggested

some possible avenues which hopefully future research will explore.

AUTHOR ACKNOWLEDGMENTS

REFERENCES

Acredolo, C., & O'Connor, J. (1991). On the difficulty of detecting cognitive uncertain. Special Issue: Cognitive uncertainty and cognitive development. *Human Development, 34*, 204-223.

Affleck, G., Tennen, H., Croog, S., Levine, S. (1987). Causal attribution, perceived benefits, and morbidity after a heart attack: An 8-year study. *Journal of Consulting & Clinical Psychology, 55*, 29-35.

Aldwin, C. (1990). The Elders Life Stress Inventory (ELSI): Egocentric and nonegocentric stress. In M. A. P. Stephens, S. E. Hobfoll, J. H. Crowther, & D. L. Tennenbaum (Eds.), *Stress and coping in late life families* (pp. 49-69). New York: Hemisphere.

Aldwin, C. (1991). Does age affect the stress and coping process? The implications of age differences in perceived locus of control. *Journal of Gerontology: Psychological Sciences, 46*, P174-180.

Aldwin, C. (1994). *Stress, coping, and development: An integrative approach.* New York: Guilford.

Aldwin, C. M., & Brustrom, J. (1997). Theories of coping with chronic stress: Illustrations from the health psychology and aging literatures. In B. Gottlieb (Ed.), *Coping with chronic stress* (pp. 75-103). New York: Plenum.

Aldwin, C., Spiro, A. III, Levenson, M.R., & Bossé, R. (1989). Longitudinal findings from the Normative Aging Study. I. Does mental health change with age? *Psychology and Aging, 4,* 295-306.

Aldwin, C., & Stokols, D. (1988). The effects of environmental change on individuals and groups: Some neglected issues in stress research. *Journal of Environmental Psychology, 8,* 57-75.

Aldwin, C. M., & Sutton, K. (1998). A developmental perspective on post-traumatic growth. In R. G. Tedeschi, C. L. Park, & L. G. Calhoun (Eds.), *Posttraumatic growth: Positive change in the aftermath of crisis* (pp. 43-63). Mahwah, NJ: Lawrence Erlbaum Associates.

Aldwin, C. M., Sutton, K., & Lachman, M. (1996). The development of coping resources in adulthood. *Journal of Personality, 64,* 91-113.

Aldwin, C. M., Sutton, K. J., Chiara, G., & Spiro, A. III (1996). Age differences in stress, coping, and appraisal: Findings from the Normative Aging Study. *Journals of Gerontology: Psychological Sciences, 51B,* P179.

Allen, M. T., & Patterson, S. M. (1995). Hemoconcentration and stress: A review of physiological mechanisms and relevance for cardiovascular disease risk. *Biological Psychology, 41*, 1-27.

Aspinwall, L., & Taylor, S. (1998). A stitch in time: Self-regulation and proactive coping *Psychological Bulletin*, *121*, 417-436.

Atchley, R. C. (1997). *Social forces and aging: An introduction to@ social gerontology (8th ed.).* Belmont, CA: Wadsworth.

Avis, N. (1999).   Women's health at midlife. In S. L. Willis & J. D. Reid (Eds.), *Life in the middle: Psychological and social development in middle age* (pp. 105-147). San Diego: Academic Press.

Baltes, P. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology, 24*, 611-626.

Baltes, P. B., & Smith, J. (1990). Toward a psychology of wisdom and its ontogenesis. In R. Sternberg (Ed.), *Wisdom: Its nature, origin, and development* (pp. 317-332). Cambridge: University Press.

Baltes, P. B., & Staudinger, U. M. (2000). Wisdom: A metaheuristic (pragmatic) to orchestrate mind and virtue toward excellence. *American Psychologist, 55*, 122-136.

Borland, D. C. (1982). A cohort analysis approach to the empty-nest syndrome among three ethnic groups of women: A theoretical position. *Journal of Marriage & the Family, 44,* 117-129.

Beardslee, W. R. (1989). The role of self-understanding in resilient individuals: The development of a perspective. *American Journal of Orthopsychiatry, 59*, 266-278.

Bengston, V., Rosenthal, C., Burton, L. (1996). Paradoxes of families and aging. In R. H. Binstock, & L. K. George (Eds.), *Handbook of aging and the social sciences* (4th ed., pp. 253-282). Academic Press, Inc, San Diego,

Benjamin, I. J., & McMillan, D R.(1998). Stres (heat shock) proteins: Molecular chaperones in cardiovascular biology and disease. *Circulation Research*, *83*, 117-32.

Beyene, Y. (1986). Cultural significance and physiological manifestations of menopause: A biocultural analysis. *Culture, Medicine, and Psychiatry, 10*, 47-71.

Birren, J. E., & Fisher, L. E. (1990). The elements of wisdom: Overview and integration. In R. J. Sternberg (Ed.), *Wisdom: Its nature, origin, and development* (pp. 317-332). Cambridge: University Press.

Bjorntorp, P. (1995). Neuroendocrine ageing. *Journal of Internal Medicine, 238*, 401-4.

Bossé, R., Aldwin, C., Levenson, M.R., & Ekerdt, D. (1987). Differences in mental health among retirees and workers: Findings from the Normative Aging Study. *Psychology and Aging, 2,* 383-389.

Bond, M., Gardiner, S. T., & Sigel, J. J. (1983). An empirical examination of defense mechanisms. *Archives of General Psychiatry, 40*, 333-338.

Botwinnick, J. (1973). *Aging and behaviour*. New York: Springer.

Brody, E. M. (1990). *Women in the middle: Their parent-care years*. New York: Springer.

Chiriboga, D. A. (1979). Marital separation and stress: A life course perspective. *Alternative Lifestyles, 2*, 461-470.

Chiriboga, D. A. (1989). Divorce at midlife. In Kalish, R. A. (Ed.), *Midlife loss: Coping strategies* (pp. 42-88). Newbury Park: Sage.

Chiriboga, D. A. (1997). Crisis, challenge, and stability in the middle years. In M. E. Lachman & J. B. James (Eds.), *Multiple paths of midlife development* (pp. 293-343). Chicago: University of Chicago.

Clausen, J. (1990). Turning point as a life course concept. Paper presented at the annual

meetings of the American Sociological Association, Washington, D. C.

Costa, P. T. & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology, 38*, 668-678.

Costa, P. T., Zonderman, A. B., McCrae, R. R. (1991). Personality, defense, coping, and adaptation in older adulthood. In E. M. Cummings, A. L. Greene, K. H. Karraker (Eds.) *Life-span developmental psychology: Perspectives of stress and coping.* Hillsdale, New Jersey: Lawrence Erlbaum.

Costello, E. (1991). Married with children: Predictors of mental and physical health in middle-aged women. *Psychiatry, 54*, 292-305.

Diehl, M., Coyle, N., & Labouvie-Vief, (1996). Age and sex differences in strategies of coping and defense across the lifespan. *Psychology & Aging*, *11*, 127-139.

Epstein, S. (1991). The self-concept, the traumatic neurosis, and the structure of personality. In D. Ozer, J. H. Healy, & A. J. Stewart (Eds.) *Perspectives in Personality, 3*, 63-98.

Eysenck, H. (1987). *The biological basis of personality*. Springfield, IL: Charles C. Thomas.

Farrell, M., & Rosenberg, S. (1981). *Men at midlife*. Dover, MA: Auburn House.
Ford, D. H., & Lerner, R. M. (1992). *Developmental systems theory*: An integrative approach. Newbury Park, CA: Sage.

Friedman, H. S., & Booth-Kewley, S. (1987). The "disease-prone" personality": A meta-analytic view of the construct. American Psychologist, 42, 539-555.

Gutmann, D. L. (1974). Alternatives to disengagement: The old men of the Highland Druze. In R. A. LeVine (Ed.), *Culture and personality: Contemporary readings* (pp. 232-245). Chicago: Aldine.

Helson, R., & Wink, P. (1992). Personality change in women from the early 40s to the

early 50s. *Psychology & Aging, 7*, 46-55.

Helson, R., & Roberts, B. W. (1994). Ego development and personality change in adulthood. *Journal of Personality & Social Psychology, 66*, 911-920.

Himes, C. L. (1994). Parental caregiving by adult women: A demographic perspective. *Research on Aging, 16*, 191-21.

Jacques, E. (1965). Death and the mid-life crisis. *International Journal of Psychoanalysis, 46*, 502-514.

Jung, C. G. (1933). *Modern man in search of a soul.* New York: Harcourt Press & World.

Kaplan, G. A., Haan, M. N., & Wallace, R. B. (1999). Understanding changing risk factor associations with increasing age in adults. *Annual Review of Public Health, 20*, 89-108.

Karasek, R., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life.* New York: Basic Books.

Kennedy, J. & Comko, R. (1991). Health needs of midlife women. *Nursing management, 22*, 62-66.

Kessler, R. C., Foster, C., Webster, P. S., & House, J. S.. (1992). The relationship between age and depressive symptoms in two national surveys. Psychology and Aging, 7, 119- 126.

Keyes, C. L. M., & Ryff, C. D. (1999). Psychological well-being in midlife. In S. L. Willis & J. D. Reid (Eds.), *Life in the middle: Psychological and social development in middle age* (pp. 161-178). San Diego: Academic Press.

Kohlberg, L., & Ryncarz, R. A. (1990). Beyond justice reasoning: Moral develoment and consideration of a seventh stage. In C. N. Alexander & E. J. Langer (Eds.), *Higher stages of human development* (pp. 191-207). Oxford: Oxford University Press.

Labouvie-Vief, G. (1990). Wisdom as integrated thought: historical and developmental perspectives. In R. J. Sternberg (Ed.), *Wisdom : its nature, origins, and development* (pp. 52-86). Cambridge: Cambridge University Press.

Langer, E. (1989). *Mindfulness*. Reading, MA: Addison-Wesley.

Langer, E., Chanowitz, B., Palmerino, M., Jacobs, S., Rhodes, M., & Thayer, P. (1990). Nonsequential development and aging. In C. N. Alexander & E. J. Langer (Eds.), *Higher stages of human development* (pp. 114-138). Oxford: Oxford University Press.

Levenson. M. R., & Crumpler, C. (1996). Three models of adult development. *Human Development, 39*, 135-149.

Levinson, D. (1978). *The season's of a man's life*. NY: Knopf.

Lieberman, M. (1996). *Doors close, doors open: Widows, grieving and growing.* New York: G. P. Putnam.

Lopata, H. (1979). *Women as widows*. New York: Elsevier.

Maruyama, M. (1963). The second cybernetics: Deviation-amplifying mutual causal processes. *American Scientist, 51*, 164-179.

Matthews, K. (1992). Myths and realities of the menopause. *Psychosomatic Medicine, 54,* 1-9.

McCrae, R. R. (1982). Age differences in the use of coping mechanisms. *Journal of Gerontology, 37*, 454-460.

McKee, P., & Barber, C. (1999). On defining wisdom. *International Journal of Aging and Human Development* 249*, 149-164.*

McKinlay, J. B., McKinlay, S. M., & Brambilla, D. J. (1987). The relative contributions of endocrine changes and social circumstances to depression in mid-aged women. *Journal of Health & Social Behavior, 28*, 345-363.

McKinlay, S., Triant, R., McKinlay, J., Brambilla, D., & Ferdock, M. (1990). Multiple roles for middle-aged women and their impact on health. In M. Ory & H. Warner (Eds.), *Gender, health, and longevity* (pp. 119-136). New York: Springer.

Merrill, S. S., & Verbrugge, L. M. (1999). Health and disease in midlife. In S. L. Willis & J. D. Reid (Eds.), *Life in the middle: Psychological and social development in middle age* (pp. 78-104). San Diego: Academic Press.

Miller, R. (1996). The aging immune system: Primer and prospectus. *Science, 273,* 70-74.

Moen, P., & Wethington, E. (1999). Midlife development in a life course context. In S. L. Willis & J. D. Reid (Eds.), *Life in the middle: Psychological and social development in middle age* (pp. 3-24). San Diego: Academic Press.

Moss, M. S., & Moss, S. Z. (1989). The death of a parent. In Kalish, R. A. (Ed.), *Midlife loss: Coping strategies* (pp. 89-114). Newbury Park: Sage.

Papalia, D. E., Camp, C. J., & Feldman, R. D. (1996). *Adult development and aging*. New York: McGraw-Hill.

Park, C. L. (1998). Stress-related growth and thriving through coping: The roles of personality and cognitive processes. *Journal of Social Issues, 54*, 267-278.

Parker, R., & Aldwin, C. M. (1997). Do aspects of gender identity change from early to middle adulthood? Disentangling age, cohort, and period effects. In M. Lachman & J. James (Eds.) *Multiple paths of mid-life development* (pp. 67-107). Chicago: University of Chicago Press.

Parkes, C. M. (1972). *Bereavement: Studies of grief in adult life*. NewYork; International Universities Press.

Parkes, C. M., & Weiss, R. S. (1983). *Recovery from bereavement*. New York: Basic Books.

Payer, L. (1991). The menopause in various cultures. In H. Burger & M. Boulet (Eds.), *A portrait of the menopause*. Park Ridge, NJ: Parthenon.

Robinson, S. D., Rosenberg, H. J., & Farrell, M. P. (1999). The midlife crisis revisited. In S. L. Willis & J. D. Reid (Eds.), *Life in the middle: Psychological and social development in middle age* (pp. 47-77). San Diego: Academic Press.

Rosenthal, C. J., Matthews, S. H., & Marshall, V. W. (1991). Is parent care normative? The experience of a sample of middle-aged women. In B. B. Hess & E. W. Markson (Eds.),

Growing old in America (4th ed., pp. 427-440). New Brunswick, NJ: Transaction.

Rott, C., & Thomae, H. (1991). Coping in longitudinal perspective: Findings from the Bonn Longitudinal Study on Aging. *Journal of Cross-Cultural Gerontology, 6*, 23-40.

Scharlach, A. E. (1991). Factors associated with filial grief following the death of an elderly parent. *American Journal of Orthopsychiatry, 61*, 307-313.

Scharlach, A. E., & Fredriksen, K. I. (1993). Reactions to the death of a parent during midlife. *Omega, 27,* 307-319.

Schulz, R., O'Brien, A. T., Bookwala, J., & Fleissner, K. (1995). Psychiatric and physical morbidity effects of dementia caregiving: Prevalence, correlates, and causes. *Gerontologist, 35,* 771-791.

Sheehy, G. (1992). *The silent passage: Menopause.* New York: Random House.

Siegler, I. C. (1997). Promoting health and minimizing stress in midlife.   In M. Lachman & J. James (Eds.), *Multiple paths of mid-life development* (pp. 241-256). Chicago: University of Chicago Press.

Spiro, A. III (in press). Health at midlife. In M. E. Lachman (Ed.), *The handbook of midlife development.* New York: Wiley.

Sternberg, R. J. (1998). A balance theory of wisdom. *Review of General Psychology, 2*, 347-365.

Stone, R., Cafferata, G. L., & Sangl, J. (1987). Caregivers of the frail elderly: A national profile. *The Gerontologist, 27*, 616-626.

Tedeschi, R. G., Park, C. L., & Calhoun, L. C. (1998).   Posttraumatic growth: Conceptual issues. *Posttraumatic growth: Positive change in the aftermath of crisis* (pp.1-22). Mahwah, NJ: Lawrence Erlbaum Associates.

Thomas, S. P. (1997). Psychosocial correlates of women's self-rated physical health in middle adulthood. In M. Lachman & J. James (Eds.), *Multiple paths of mid-life development* (pp. 257-292). Chicago: University of Chicago Press.

Troll, L. (1973). *Early and middle adulthood*. Monterey, CA: Brooks/Cole.

Vaillant, G. (1977). *Adaptation to life: How the best and the brightest came of age*.
Boston: Little-Brown.

Vaillant, G. E., Bond, M., & Vaillant, C. O. (1986). An empirically validated hierarchy
of defense mechanisms. *Archives of General Psychiatry, 43*, 786-794.

von Bertalanffy, L. (1969). *General systems theory: Foundations, development,
applications*. New York: G. Brazilier.

Wallerstein, J. S. (1986). Women after divorce: Prelminary findings from a ten year
follow-up. *American Journal of Orthopsychiatry, 56*, 65-77.

Whitbourne, S. K. (1986). Openness to experience, identity flexibility, and life change in
adults. *Journal of Personality and Social Psychology*, 50*, 163-168.*

Winsborough, H. H. Bumpass, L. L., & Aquilino, W. S. (1991). The death of parents and
the transition to old age. Paper presented at the annual meeting of the Population Association of
America, Washington, D. C.

Yancura, L. A., Aldwin, C. M., & Spiro, A. III (1999). Does stress decrease with age? A
longitudinal examination of stress in the Normative Aging Study. *The Gerontologist, 39*, 212.

Zarit, S. H., Todd, P. A., Zarit, J. M. (1986). Subjective burden of husbands and wives as
caregivers: A longitudinal study. *Gerontologist, 26*, 260-266.