



Emotion and Aging

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Cormorbidity The co-occurrence of two separate diseases or disorders, in this case, of depression and medical illnesses.

Convenience Samples The use of volunteers or easily recruited populations (e.g., introductory psychology students) rather than representative or random samples.

Cross-Sectional Design Comparisons among multiple age cohorts at the same time; confounds age differences with generational differences.

Rumination Repetitive and emotion-focused thinking pattern in response to sadness, which exacerbates the intensity of depression.

This article reviews the literature on emotional experience and **EMOTION REGULATION IN LATER LIFE**. We focus on three broad areas in which age has been examined: (1) specific emotion processes (viz., physiology, expressive behavior, and subjective experience), (2) the regulation of emotional experience, and (3) the relationship between emotional experience and health.

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I. INTRODUCTION

The research literature on adulthood and aging that has accumulated over the past 50 years documents widespread deleterious changes associated with the aging process, ranging from greater vulnerability to disease and disability to a generalized slowing in cognitive processing. Indeed, "slowing" is widely viewed as the hallmark of aging in the second half of life.

The extent of the losses associated with aging is compelling. Researchers in the social sciences, however, are beginning to realize that an emphasis on loss in old age may have obscured a potential for gains; clearly, a complete picture of aging must encompass both. Recent research suggests positive change in some domains, even into very old age. Emotional functioning appears to be one such domain. Not only does emotional functioning appear to be largely spared from declines in late life, there is growing evidence that it may improve.

In the following sections we review theoretical perspectives and empirical evidence on emotion and aging, focusing on emotional responding, emotion

regulation strategies, and the interaction between emotional functioning and physical and mental health. We begin, however, with a definition of emotion.

What is emotion? This deceptively simple question is the subject of considerable intellectual debate in the fields of psychology, anthropology, sociology, and philosophy. In psychology, emotions are generally viewed as short-lived responses to environmental events, comprised of concomitant changes in physiology, subjective experience, and expressive behavior.

Research on emotion suggests that there are a handful of basic emotions, such as anger, disgust, and happiness, which are characterized by specific physiological, subjective, and behavioral profiles. Anger, for example, is typically evoked by environmental events that trigger a subjective sense of being thwarted, demeaned, and offended, and involves an increase in heart rate and a frowning of the eyebrows. Disgust, on the other hand, typically occurs in response to events that trigger a subjective sense of being too close to a contaminated object, and involves a slowing of heart rate and wrinkling of the nose. These core emotions are believed to be relatively consistent across cultures, although there may be considerable cultural variation in the appropriateness of displaying emotions, or even in the specific events that elicit particular emotions.

Core emotions are distinguished from other aspects of emotional functioning, such as subjective well-being or life satisfaction, as well as other aspects of emotional dysfunction, such as clinical depression, anxiety, and other affective disorders, by their time course (relatively brief) and by specificity in component processes (e.g., physiological responding, facial expression, subjective experience). Because emotional functioning more broadly defined is related to the everyday experience of emotions, we also address life satisfaction and affective disorders.

Three main questions emerge from the literature on emotion and aging. First, does emotional experience change with age, and if so, in what ways? Second, does the ability to effectively regulate emotion change with age? And, finally, because age-related changes in emotional functioning occur along with other age-related changes, particularly declines in physical health, what is the relationship between health and emotion over the life span?

II. DOES EMOTIONAL RESPONDING CHANGE OVER THE LIFE SPAN?

There are clear developmental changes in emotional functioning. The literature, however, has focused primarily on changes in early life. Emotional development in childhood is conceptualized as a process of increasing differentiation, complexity, and competence. Nathan Fox and Richard Davidson at the University of Wisconsin, Madison, propose that during infancy, infants appraise stimuli as "appetitive" or "aversive," and respond to those stimuli by simply approaching or withdrawing. As the children mature, experiencing more of the world, they acquire more differentiated emotional states such as anger, sadness, fear, and contentment. By the age of 4 or 5, children have acquired even more complex, socially relevant emotions such as shame and guilt. Similarly, in facial expressive behavior, infants acquire the ability to make increasingly complex emotional facial expressions with increasing age. Infants also demonstrate increasing sophistication in their understanding of environmental stimuli. At birth, for example, hungry infants cry until the moment a breast or bottle is placed in their mouths. Eventually, they are calmed by the appearance of the mother or bottle, having come to understand that mother and/or bottle indicate the imminent satisfaction of their needs.

Emotion regulation also changes with age. Parents pay considerable attention to their children's emotions, teaching them to express emotions in culturally appropriate ways (e.g., in European-American culture, children are taught to calm themselves, and to talk about their internal emotional states). Throughout the early years, children come to regulate their emotions more effectively, suppressing facial expressions and disguising displays of internal states. Emotional control is considered a mark of maturity. By adulthood, individuals who fail to modulate their emotions well are viewed, at best, as "immature," and at worst, as "psychopathological."

Thus, the early part of life is characterized by the acquisition of greater emotional specificity and differentiation and proficiency in emotion regulation. The bulk of basic research on emotional functioning is concentrated on young adult college populations, leaving great gaps in our knowledge about the development of emotional functioning from early childhood until

young adulthood, and beyond early adulthood. Researchers have paid some attention, however, to emotions in later life.

Until a decade or so ago, the view of emotional functioning toward the end of the life span according to popular lore and social science theory has been quite negative. Older adults have been viewed as emotionally rigid and disengaged from life. Early in the century, Jung wrote that older people turn away from the social world, engaging increasingly in introspection. In the 1960s and 1970s, proponents of disengagement theory argued that older adults become emotionally quiescent, withdrawing from other people in a symbolic preparation for death. The notion that emotional responding declines in later life is consistent with biomedical models of aging, where decrement and decline reign, as well as psychoanalytic models of aging, which focus on the defense mechanisms employed to cope with the inevitability of death.

An understanding of emotion in old age is only beginning to be informed by empirical evidence, thus the picture we paint in this chapter may change. However, at present, there is little evidence that emotional quiescence is typical of old age. Although negative emotions appear to grow more infrequent, positive emotions do not. Moreover, when negative emotions do occur, older people's subjective experience is indistinguishable from younger peoples' experience, a picture more consistent with improved emotion regulation than with a general emotional dampening. [See AGING AND MENTAL HEALTH.]

Below, we consider findings from some of the research questions that have been put to empirical test. We first review some common methods used to examine emotional experience in the laboratory, and then discuss what these methods reveal about aging and emotion.

A. Emotional Responding in the Laboratory

Given that organic deficits are the presumed root of cognitive decline in old age, such deficits could also influence emotional functioning. For example, it is conceivable that older people experience fewer negative emotions because general deterioration of the central and autonomic nervous systems lessens the physical impact of such emotions. In order to investigate

these issues, researchers have examined the physiological aspects of emotional responses. Specifically, the magnitude and the specificity of autonomic nervous system activity associated with emotions has been studied.

Much of the research examining the psychophysiology of emotion in later life has been conducted by Robert Levenson, at the University of California at Berkeley, and his colleagues. In the laboratory, research participants engage in experimental tasks designed to elicit specific emotions. These tasks include viewing emotional films, making emotional facial expressions, or vividly remembering emotional events in the past. As subjects engage in these tasks, their physiological activity (i.e., autonomic nervous system response) is continuously monitored and their facial expressions videotaped. Either during or after they complete the task, participants report how intensely they experienced a number of different emotions (e.g., anger, sadness, happiness) during the tasks. These tasks produce measurable emotional responses in younger and older participants, males and females, and European Americans and Chinese Americans.

Levenson and colleagues have identified emotion-specific patterns of autonomic nervous system responding. For example, in response to making emotional facial configurations and imagining past emotional events, changes in heart rate are distinguished for the emotions of anger, fear, sadness, and disgust. If emotional functioning decays in later life, one result might be that these emotion-specific patterns are less differentiated in older people. This is not the case; older people exhibit the same emotion-specific patterns as younger people. The magnitude of autonomic nervous system response, however, is somewhat lower in older people. It is unclear whether this reduction in autonomic arousal is specific to emotional functioning, or is a reflection of overall physiological changes that accompany age. In short, research has shown that emotions can be elicited in older people in the same way they are elicited in younger people. Physiologically, the pattern of emotional responding is similar in older and younger adults, although the magnitude of response is lower for older adults. Moreover, the age similarities and differences are consistent in European-American and Chinese-American groups.

Facial expressiveness might also show age changes.

Paul Ekman of the University of California at San Francisco and his colleagues, have demonstrated that predictable facial muscle movements are associated with specific emotions. For example, anger is characterized by lowered brows and a tight mouth; fear by raised brows and widened eyes. Paul Ekman and Wallace Friesen developed a highly sophisticated system called the Facial Action Coding System to help identify muscle-by-muscle movements in the face as people experience a variety of emotions. Work by Levenson, Carstensen, Ekman, and Friesen revealed no differences between facial expressiveness in older and younger people. That is, older and younger people use similar facial movements to express the emotions they are feeling. In other laboratory studies of facial expressivity, by Carol Malatesta-Magai at Long Island University and her colleagues, older adults appear more emotionally expressive than younger adults. Research subjects were videotaped while they were asked to recall times when they experienced particular emotions. In this case, older research subjects expressed more emotion via the face during the experimental task. Research subjects were also asked about their expressiveness in everyday life. Older adults reported that they were more expressive than younger adults.

Despite being equally or more facially expressive than younger adults, older adults' facial expressions may be more difficult for others to decode, particularly others of different ages (e.g., younger adults). Malatesta-Magai and her colleagues provided evidence that there may be static changes (e.g., wrinkling) in the faces of older people that reflect individual personality traits. These changes may obscure the expression of more transient emotion states. Older adults completed emotional trait measures and were then asked to pose various emotional expressions. Those posed faces were photographed and then shown to naive judges, who were asked to identify which emotion the person was expressing. The traits that characterized a person (e.g., depression), predicted which emotions were easy for judges to identify (e.g., sadness) and which were more difficult (e.g., joy).

Finally, older adults may be less skilled at decoding others' emotional faces. Malatesta-Magai and colleagues showed videotapes of subjects experiencing different emotions to people of various ages, and asked them to judge which of 10 emotions the person on the tape was feeling. Older adults showed slightly lower accuracy at this task than younger adults. Other

researchers have used photographs of people posing facial expressions, and have documented similar deficits. However, such deficits might have multiple causes that have little to do with emotional functioning. For example, age-related declines in facial recognition ability, visual ability, or even a differential need for practice at the task might all contribute to elderly adults' lowered performance. When researchers have equated young and old adults for the ability to recognize faces, age-related deficits in recognizing emotional facial expressions disappear, suggesting that this deficit is related to nonemotional aspects of cognitive aging. Moreover, there is no clear relationship between the ability to identify emotional facial expressions in the laboratory and everyday emotional functioning.

Perhaps most important are age differences in the subjective experience of emotion during laboratory inductions. Here the findings are clear. Older and younger people do not differ from each other in the intensity of emotions induced in the laboratory, regardless of how the emotion was induced. Thus, when the emotional stimuli are tightly controlled, older and younger people respond to the same degree.

In summary, experimental studies of emotional responding suggest far more similarities than differences between younger and older adults. As compared to younger adults, older adults respond to emotional stimuli similarly, and report a comparable intensity of emotional experience. They show similar patterns of autonomic arousal and are at least as emotionally expressive as younger adults (perhaps more so). The magnitude of physiological arousal is somewhat reduced, however. This difference is difficult to interpret because it is unclear whether the reductions are specific to the emotion domain or instead are due to more general changes in physiological functioning in later life. At any rate, this difference does not influence reports of subjective experience.

B. Emotions in Everyday Life

In contrast to examining emotions "on-line" while they are experienced in the laboratory, other studies have used surveys to assess the ways that older and younger people judge their experience of emotions in everyday life. Here again, researchers have asked questions about the kinds of emotions people experience, as well as the intensity with which they are experienced. Responses to such surveys are important in

that they tap the ways that people view their own emotional functioning. These methods are limited, however, by demand characteristics and simple miscalculations or biases that can distort people's self-assessments.

Nevertheless, results from such research suggest that in everyday life, older and younger adults experience specific emotions at different frequencies. Compared to younger adults, older adults report that they experience sadness and anger less often, and contentment more often. Older and younger adults do not differ in the intensity with which they report feeling particular emotions.

Powell Lawton and his colleagues at the Philadelphia Geriatric Center suggest that the structural dimensions underlying emotional experience may also be different for older and younger adults. Most notably, younger adults' conceptions of positive emotional experience include more arousing emotions, like excitement, whereas older adults' conceptions of positive emotional experience include more subdued emotions like contentment.

Whereas laboratory investigations of emotionality show substantial stability in emotional experience across the life span, survey studies show that older adults may experience more positive emotions and fewer negative emotions, suggesting that emotional functioning may be improved in later life. Overall, the most robust changes in emotional functioning seem to involve decreased physiological arousal and surgency. Table I summarizes the findings on basic aspects of emotional experience in older versus younger adults.

Laboratory and survey investigations of emotion

reveal much about emotional experience, but such investigations also leave much ground uncovered. Emotion does not occur in a social vacuum, independent of other mental processes. Rather, it influences and is influenced by cognitive and social processes.

C. Emotion, Cognition, and Social Behavior

Although emotions serve very adaptive purposes, they can also disrupt logical reasoning, memory, and other cognitive processes. Gisela Labouvie-Vief, of Wayne State University, and her colleagues have argued that a developmental task of childhood and early adulthood is to learn to separate "emotional" from "objective" aspects of experience, and to approach problems encountered in everyday life with "reason" rather than emotion. In order to learn the language and social rules of a culture, children must learn to distinguish between abstract, collectively shared meanings and idiosyncratic private meanings. The task of later adulthood is to reintegrate emotional or subjective aspects of experience with objective aspects, leading to what is called synthetic, or "dialectical" reasoning. Such reasoning might be portrayed as the dialogue between the self and the external world. For example, a person might understand that lying is immoral but simultaneously appreciate the necessity to lie on certain occasions.

One prediction that this theoretical model makes is that younger adults reason more poorly about emotion-laden topics because it is difficult to separate emotional from objective information for such topics. For example, younger adults might have difficulty reasoning about situations that contrast objective regulations with their own subjective desires. The emotionality of the topic should not interfere with the reasoning of older adults, as they have learned to distinguish and make use of private, subjective, or emotional information as well as objective information. This prediction has been supported with adolescents, young adults and middle-aged adults. Middle-aged adults reason equally well about emotional and nonemotional topics, while adolescents and younger adults perform more poorly when reasoning about emotional topics. [See EMOTION AND COGNITION.]

Labouvie-Vief and her colleagues also suggest that older adults think differently about emotion than do younger adults. When they asked adults of various ages to describe emotional experiences, they found

Table I

Aspect of emotional functioning	Findings
Subjective responsiveness to laboratory stimuli	Age stability
Physiology	
Pattern	Age stability
Magnitude	Age declines
Facial expression	
Amount of expression	Age stability/ increase
Pattern of expression	Age stability
Decoding others' expressions	Age declines
Subjective experience	
Intensity	Age stability
Type of emotions experienced	More positive Fewer negative

that older adults had more cognitively complex representations of emotion than did younger adults. In particular, older adults describing emotional experiences used language that was oriented toward inner feelings, and that suggested more variability of emotional experience over time and across situations. Older adults also report a more reciprocal understanding of emotional encounters, in which the people involved and the situation are seen as exerting influence on one another.

Laura Carstensen and her colleagues at Stanford University argue that emotion is more salient for older as compared to younger adults. They propose that this difference should be reflected in memory for emotionally relevant information, with older adults showing better memory for emotional versus nonemotional information. They tested the prediction by having older and younger adults read prose passages excerpted from novels. Later, when asked to recall the passages, older adults remembered proportionally more emotional information than did younger adults.

So far we have maintained a focus on emotional experiences or cognition–emotion relationships that are assessed in a solitary context. Yet emotion is clearly a social phenomenon. The experience of emotions often has social antecedents and social consequences. Even our emotional expressions are fundamentally social, fulfilling communicative functions. Researchers have shown that emotional expressions occur with far greater frequency in social settings, functioning to communicate emotions to others. Consequently, we might see age-related changes in emotion by looking at age-related shifts in social behavior and social functioning.

According to Carstensen's socioemotional selectivity theory, emotion becomes more important whenever people approach social endings. Because old age is inextricably confounded with the ultimate ending, namely death, older people are more motivated by emotional aspects of experience, including increased efforts to regulate and optimize their emotional experience. Experiments rooted in this theory have shown that older adults differ from younger adults in the type of social partners they choose, and in the ways that they mentally represent social partners. Older adults, relative to younger adults, are more likely to choose emotionally meaningful social contacts, like family members or long-term friends. Moreover, older adults' representations of social partners tend to em-

phasize the emotional implications of spending time with those partners, rather than the potential to gain new information, or the likelihood of future contact. Finally, emotionally close social partners represent increasingly larger proportions of people's social networks as they age. Older adults' greater investment in emotionally important relationships can be viewed as one way of controlling their social environments to achieve positive emotional goals, a point to which we return below.

In a collaborative effort, Robert Levenson, Laura Carstensen, and John Gottman studied marital conflict in middle-aged and older couples in order to investigate age differences in the ways that couples negotiate emotionally negative social situations. Married couples came into the laboratory and were asked to engage in conversations about the events of the day, an important, mutually selected marital conflict, and a topic both spouses enjoy talking about. The conflict-related conversations were analyzed for the kinds of emotions experienced and expressed by both spouses. Older adults were able to express more affection and less hostility during a conversation about marital conflict, regardless of whether they were happily or unhappily married. This work, like the work on social networks, also suggests that older adults are relatively adept at managing their social environment to regulate their own emotional outcomes, perhaps more so than younger and middle-aged adults.

Emotion, then, is more cognitively salient to older adults, and plays a much larger role in perceptions of and choices about social partners. Moreover, there is evidence that changes in the relationship between cognition and emotion (e.g., dialectical reasoning) and in the relationship between social functioning and emotion (e.g., selective investment in emotionally close partners) are adaptive.

III. DOES EMOTION REGULATION CHANGE WITH AGE?

The positive nature of everyday emotional experience in later life contrasts sharply with popular views of old age as a time of loss and grief. Gerontologists have coined the phrase "the paradox of aging" to capture the nearly ironic profile of findings on social and emotional aging. Old age is fraught with physical illness and social losses (e.g., due to deaths, retirement, ill-

ness, etc.). Yet, despite the greater likelihood of experiencing stressful events in old age, coupled with heightened constraints on everyday activities due to physical and financial changes that typically accompany old age, older adults' life satisfaction is indistinguishable from that of younger adults. Thus, life circumstances are objectively poorer in old age for most people, but emotionally, older people are faring as well as younger people.

Improvement in emotion regulation may account for this paradox. Better able to regulate emotion, older adults may encounter the negative events common to old age with greater resilience than younger adults confronted with similar life circumstances.

As mentioned above, socioemotional selectivity theory contends that older adults are more motivated by emotional aspects of experience. Evidence for the theory suggests that not only is emotion regulation more important for older adults, older adults make effective use of their social environments to regulate emotions. They do so by choosing familiar and intimate social partners, with whom emotional experience is predictable, usually positive and meaningful. They also manage "risky" interactions, like conversations about marital conflict, with greater skill. Clearly, older adults demonstrate greater investment and skill in managing the emotional side of their social lives.

A good deal of evidence suggests that as people grow older, they become more skilled at regulating their emotions through social means, by choosing to engage in social interactions that will yield predictable positive emotional experience. Other aspects of emotion regulation may also improve with age, including strategies that are aimed at managing an emotion while it is being experienced. For example, people may become sad and try to feel better. While there are few studies on age differences in managing emotions, older adults report that they are better able to manage their emotions than younger adults, and that they are less likely to engage in rumination, a process known to increase the duration and severity of sadness.

Another aspect of emotion regulation involves coping with the constraints of later life, and with the negative events that are more likely to occur in later life. We will first look at some specific ways that older adults might cope with age-related constraints on their resources, whether physical or financial, and then explore the ways that older adults might cope more effectively with negative life events.

Many theorists, including Richard Lazarus at the University of California at Berkeley and his colleagues, suggest that emotions occur in response to the attainment or loss of people's chosen goals, with positive emotions associated with reaching or maintaining a selected goal. In later life, because age-related constraints (e.g., physical, financial) may make some goals difficult to attain or to maintain, it is important to be flexible in one's commitment to a given goal. Jochen Brandtstädter and his colleagues at the University of Trier and Jutta Heckhausen, at the Max Planck Institute for Human Development, and her colleagues have explored the ways that adults of different ages manage their goals. They find that older adults tend to be more flexible about their chosen goals, giving up goals that are clearly unattainable, and selecting goals that will be attainable given current resources. Flexibility increases the likelihood that people will succeed at the goals they do select, thus experiencing fewer negative emotions, and more positive emotions.

A second strategy for maintaining positive affect in the face of age-related constraints involves comparing one's own circumstances with those of others. Shelley Taylor, at the University of California at Los Angeles, and her colleagues argue that comparing oneself to others who are worse off allows people to feel better about their own life. Ironically, negative stereotypes about aging may actually allow older people to evaluate their own situations favorably despite troubles they encounter. If most older people are seen as lonely, depressed, and ill, older people who experience none of these things can feel fortunate. Most older people, when asked, report that they are doing better than the average person their age. This does not mean negative stereotypes about aging are inherently good; rather, older adults may make adaptive use of ageist beliefs.

However, it is not simply that old age is associated with declines in physical capacity or reduced financial circumstances. Old age is also associated with negative life events, including the deaths of close friends and loved ones. Research on coping with such events suggests that older adults may be more skilled at this aspect of emotion regulation as well.

Susan Folkman, at the University of California at San Francisco, along with Lazarus and their colleagues have explored responses to negative life events and have classified coping behaviors as either instrumental or emotional. Instrumental coping activities

are those that directly influence a person's circumstances—for example, seeking medical care, or avoiding dangerous behaviors, or eating healthier foods. Although such strategies do not directly influence emotion, engaging in active instrumental behaviors may restore an individual's sense of control and well-being in spite of the negative life event. Most research suggests there are no age differences in the use of these strategies. Lazarus and Folkman have outlined a second broad class of coping strategies that are aimed at emotion regulation in the face of negative events. They find that older adults use more emotion-focused coping strategies than do younger adults. In particular, older adults use more distancing responses (going on as if nothing had changed), more acceptance of their own responsibility for events, and more positive reframing of the negative event. As Folkman and Lazarus argue, these strategies are effective ones. [See COPING WITH STRESS.]

Thus, although older adults encounter more age-related constraints and negative life events, there is good evidence that older adults have strategies for coping with them. Further, they may be more skilled at emotion regulation in general. This gain in emotion regulation partly demystifies the paradox outlined at the beginning of this section. However, there are other possible resolutions. All of the above explanations for the paradox retain the tacit assumption that emotional well-being is threatened in old age and that elderly adults do something to compensate for the threats, resulting in stability of well-being across the life span. The assumption of threat is based upon the notion that negative life events are associated with decreases in well-being and the objective fact that such events are more likely in old age (e.g., death of a spouse, serious physical illness). There are two other possibilities: one is that such events are better anticipated in old age, and thus older adults are actually less distressed by those events than younger adults in comparable circumstances. A second possibility is that negative life events themselves are not as clearly associated with negative emotions and subjective distress as is typically assumed.

Does the "predictability" of a negative life event matter in terms of its impact on emotional responses? Research on control and depressive mood suggests that knowing when a negative event will occur lessens the negative impact associated with it, at least for animals who are being shocked either randomly (unpre-

dictably) or on a regular schedule (predictably). There is some evidence that human beings operate similarly. The loss of a spouse produces an immediate drop in well-being for people of all ages. Up to 2 months after the loss of a spouse, both men and women report higher levels of depression and psychological distress compared to same-aged adults who have not lost their spouse. These differences diminish 1 to 2 years after the death of the spouse. However, compared to older adults, middle-aged adults report higher levels of anxiety and hopelessness/helplessness 2 and 6 months after the death of their spouses. In later life, spousal bereavement is both more likely and may be more predictable. Thus the "expectedness" of a death may influence the relationship between bereavement and distress. [See ANXIETY; DEPRESSION.]

Caregiving for an infirm relative is a common event in middle and old age. Elizabeth Clipp and Linda George at Duke University report that younger caregivers also fare more poorly than older caregivers, especially when emotional outcomes are measured. Regardless of whether the family member who requires care is suffering from cancer or from dementia, younger caregivers are more likely to be depressed than older adults. Again, this difference may have to do with the differential impact of expected caregiving versus unexpected caregiving on emotional distress.

A second possibility is that negative life events do not, in and of themselves, influence emotional well-being. Despite the intuitive appeal of the idea that life events are related to well-being, few empirical findings support this hypothesis. With the exception of spousal bereavement and caregiving, most life events examined in the literature do not have a strong relationship to emotional well-being in the long-term. Thus, for those older adults who are not mourning the recent loss of a spouse or caregiving for an ill relative, there may be little threat to their well-being. This is not to deny, of course, that some individuals are quite distressed by specific events, like retirement. The findings simply suggest events like retirement are not experienced as negative and stressful for *most* individuals. Given the individualized nature of many life events, then, it is problematic to suggest that old age is fraught with negative life events that necessarily have a strong impact on well-being or everyday emotional experience.

The low prevalence of affective disorders in later life also suggests the possibility of gains in emotion

regulation. Fewer older adults are clinically depressed or anxious, and fewer older adults experience clinical depression for the first time in old age, compared to younger adults. Much of the available evidence suggests that older adults are actually less vulnerable to these clinically significant failures in affect regulation. Below, we briefly review the cases of depression and anxiety.

A. Affective Disorders

Both depression and anxiety (and indeed, all psychiatric disorders except the dementias) have lower incidence and prevalence rates in elderly populations. In other words, fewer elderly than young are depressed or anxious at any given time, and far fewer elderly adults become depressed or anxious for the first time in their later life. In fact, some evidence suggests that older adults who have a history of clinical depression are at lower risk for relapse in old age than in young and middle adulthood.

Despite lower rates of affective disorders, older adults do report more depressive symptoms than middle-aged adults. These symptoms are likely to correspond to a decrease in energy and a lack of interest in activities, but do not meet the diagnostic criteria for clinical depression. In other words, older adults do experience negative feelings, but they do not become depressed.¹ This is true despite age-related increases in risk factors for depression and anxiety, particularly disease and disability. In fact, physical illness is strongly associated with negative affect, particularly sadness, anxiety, and depression. In the next section, we explore the relationship of health to emotion in later life.

IV. HOW DOES HEALTH INFLUENCE EMOTION?

Older adults are clearly at greater risk for ill health than younger adults. As we noted above, many physical

conditions common in old age can create symptoms that mimic affective disorders. These disorders include metabolic deficiencies, endocrine disorders, cardiovascular disease, and nutritional problems. Strokes, dementia, Parkinson's disease, and Huntington's disease are highly likely to co-occur with depression. Many medications used to treat common disorders have side effects influencing mood. High prevalence rates of chronic health conditions and subsequent drug treatment may make infirm older adults particularly vulnerable to depression.

It is hardly surprising that chronic health problems can lead to high levels of negative affect. Physical illnesses impair people's ability to live independently and undermine their sense of control over their lives. Much evidence shows that having a sense of control is related to feeling positive about one's life, and is a protective factor against affective disorders. Thus, even when an illness does not cause depression-like symptoms or induce negative affect, physical illness and depression may be indirectly related.

In fact, an estimated 15% of elderly people who are hospitalized meet the criteria for major depression. Nursing home populations also have high rates of depression and depressive symptoms. Much of the literature on the relationship between health and emotions has focused on clinical depression or on symptoms of depression, rather than on everyday emotional experience. While clinical depression encompasses a range of symptoms, one of the major aspects of clinical depression is the frequent experience of sadness and related emotions. In this chapter, we consider findings on depressive symptoms to reflect, in part, emotional distress.

One question is whether older adults are actually more likely to experience depression in response to physical illness than are younger adults. Linda George, at Duke University, and her colleagues point out that in absolute numbers there will be more depression co-occurring with physical illness among older adults simply because there are more older adults who are ill.

In fact, when George and her colleagues examined the risk of developing an affective disorder given that one has a physical condition, they found that this risk was high for all age groups. Regardless of age, everyone who is physically ill is more vulnerable to depression. Moreover, the elderly are relatively less at risk than members of other age groups. That is, although

¹In general, findings about affective disorders in later life are controversial, and it would require an entire article to adequately address even the current state of knowledge about geriatric depression. For our purposes, it is simply interesting to note the epidemiological findings, and their consistency with other findings about emotion and aging.

being physically ill increases risk for everyone, those with the lowest increase in risk are the elderly. Depression is associated with physical illness and disability; but this association is not stronger in older adults. Rather, the rates of physical illness and disability rise disproportionately in old age, making it appear that older adults are more vulnerable to depression in conjunction with physical disabilities.

One reason for the relative invulnerability of frail elderly to depression may be the coping strategies that they use in response to illnesses. Older adults may cope with illnesses more effectively than do young adults, especially with respect to emotion. Folkman and colleagues have not concentrated on coping with illnesses specifically, but other researchers have applied their model (of instrumental and emotion-focused coping) to the specific problem of coping with later life illnesses.

Barbara Felton, at New York University, and her colleagues find that older adults are less likely to vent their frustration, anger, or hostility about their illness on family and friends. This does not mean that older adults suppress their emotional responses, but it does mean that they do not express those emotional responses in a problematic way. Similarly, in the work of Carolyn Aldwin, at the University of California at Davis, and her colleagues, older adults are less likely than younger adults to use hostile, blaming, or other emotionally negative coping strategies, which are among the least effective ways to cope with stress.

For example, cancer is an illness that is far more likely in later life, and one that is also associated with twice as much depression as are general medical conditions. In fact, emotional distress in cancer patients can remain higher than in control groups for as long as 5 years. Here, too, older adults appear to be at an advantage. Vincent Mor, at Brown University, and his colleagues have examined the impact of cancer on patients of varying ages. They interviewed patients repeatedly over the period just following diagnosis, and up to 2 years after the diagnosis of cancer was made. Their findings show that older patients are less distressed from the time at which diagnosis is made, through the follow-up period. Moreover, the lower emotional distress of older patients is consistent across varying types of cancers, and when dependency and severity of symptoms are statistically controlled. [See CANCER.]

Just as the literature on coping with life events suggested, older adults appear to cope better with physi-

cal disability than do younger adults. Again, this may be partly due to the anticipation of disability in later life, partly due to the smaller number of competing demands for older adults' time and resources, partly due to the existence of social institutions like Medicare that are designed to help older adults with medical care, and partly due to improved abilities to regulate emotion. The overall picture, however, is quite positive.

Emotions do influence physical health, as well, and this is one area in which the elderly may be at greater risk than the young. The specific ways in which emotional experiences can influence physical functioning are largely unspecified, but most researchers think that the mechanism involves immunological functioning. Steven Schliefer, at Mount Sinai School of Medicine, and his colleagues have been examining the impact of clinical depression on immunological functioning in adults of various ages. They recruit people of various ages who are clinically depressed, and assess their immunologic functioning in a variety of ways. Regardless of how they assess immunological functions, older adults who are clinically depressed show lowered immune functioning. Suppressed immune functioning can render older adults susceptible to a variety of illnesses, and Schliefer and his colleagues have evidence that bereavement can produce suppressed immune functioning similarly to depression.

In short, research on the impact of health conditions on emotional functioning suggests that older adults are functioning better than younger adults—coping better with illnesses and, relative to infirm younger adults, are less vulnerable to depression in response to illness. On the other hand, emotional distress, at least from bereavement, can have a more serious impact on the immunological functioning of older adults than on younger adults.

V. SUMMARY AND CONCLUSIONS

In this article, we have examined different aspects of emotional functioning—including the component processes of emotion—in search of age differences. The vast majority of findings suggest that emotional functioning in adulthood is characterized by either stability or modest gain. Although older adults do show lowered physiological arousal in response to laboratory emotional stimuli, the cause of this reduced arousal is unclear. It is likely that reduced phys-

iological arousal in response to negative emotions represents a more global trend toward reduced autonomic responsiveness, rather than a decline in emotional functioning, given that there are no age differences in the subjective experience of emotion.

Despite optimistic beginnings, far more research is needed in the area of emotion and aging. Much of what is known about affect and aging relies on self-reports. Most is based on cross-sectional age comparisons. Much of the research has been based on convenience samples and has not adequately addressed issues of ethnicity, class, or gender, not to mention cultural differences. Yet the potential for improved functioning in the emotion domain is clear from the research literature. Aging is not simply a time of loss, rather, accumulated life experiences may, in fact, help us cope well with the challenges of our increasing longevity.

BIBLIOGRAPHY

- Carstensen, L. L. (1995). Evidence for a life-span theory of socio-emotional selectivity. *Current Directions in Psychological Science*, 4(5), 151-156.
- Ekman, P., & Davidson, R. J. (1994). *The nature of emotion: Fundamental questions*. Oxford: Oxford University Press.
- Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age Differences in Stress and Coping Processes. *Psychology and Aging*, 2(2), 171-184.
- George, L. K., Landerman, R., Blazer, D., & Melville, M. L. (1989). Concurrent Morbidity between Physical and Mental Illness: An Epidemiologic Examination. In L. L. Carstensen & J. Neale (Eds.), *Mechanisms of psychological influence on physical health* (pp. 9-22). New York: Plenum.
- Labouvie-Vief, G., Hakim-Larson, J., DeVoe, M., & Schoeberlein, S. (1989). Emotions and self-regulation: A life-span view. *Human Development*, 32, 279-299.
- Powell Lawton, M., Kleban, M. H., & Dean, J. (1993). Affect and age: Cross-sectional comparisons of structure and prevalence. *Psychology and Aging*, 8(2), 165-175.
- Levenson, R. W., Carstensen, L. L., Friesen, W. V., & Ekman, P. (1991). Emotion, Physiology, and Expression in Old Age. *Psychology and Aging*, 6, 28-35.
- Malatesta-Magai, C., Jonas, R., Shapard, B., & Culver, L. C. (1992). Type A behavior pattern and emotion expression in younger and older adults. *Psychology and Aging*, 7(4), 551-561.
- Mor, V., Allen, S., & Malin, M. (1994). The psychosocial impact of cancer on older versus younger patients and their families. *Cancer*, 74(7) (Suppl.), 2118-2126.
- Schleifer, S. (1989). Bereavement, depression, and immunity: The role of age. In L. L. Carstensen & J. M. Neale (Eds.), *Mechanisms of psychological influence on physical health* (pp. 61-80). New York: Plenum.