

Emotion in the Second Half of Life

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Research on aging has focused primarily on the functional decline people experience as they grow old. Empirical evidence from multiple subdomains of psychology, most notably cognition, perception, and biological psychology, documents reduced efficiency, slowing, and decreased elasticity of basic mental and physical processes with age. Though findings are far more mixed in social aging research, there remains widespread, if tacit, sentiment that the task of gerontological psychology is to assess the ways in which functional declines affect the life of the aging individual.

We assert that the focus on age-related declines in human aging may have steered researchers away from certain questions that, when answered, would paint a more positive picture of old age. Specifically, we argue that changes in the emotion domain challenge models of aging as pervasive loss and point to one central area that is better characterized by continued growth in the second half of life. We posit that old age is marked by greater saliency and improved

regulation of emotions, and that emotional well-being, when it does suffer, declines only at the very end of life, when the cognitive and physical disabilities that often precede death in very old age overshadow previously vital areas of functioning (M.M. Baltes, 1998). These ideas are consistent with a curvilinear pattern of findings that document preserved or improved satisfaction with interpersonal relationships in older age groups (Diener & Suh, 1997), despite increased depressive symptoms and functional difficulties among the oldest old (e.g., Smith & Baltes, 1997).

The research we review here is rooted in socioemotional selectivity theory (Carstensen, 1993, 1995, 1998; Carstensen, Gross, & Fung, 1997; Carstensen, Isaacowitz, & Charles, 1999), a psychological model maintaining that limitations on perceived time lead to motivational shifts that direct attention to emotional goals. The theory posits that the resulting increased attention to emotion results in greater complexity of emotional experience and better regulation of emotions experienced in everyday life. One emotional goal that becomes paramount is interacting with individuals who provide emotionally fulfilling interactions. When people are relieved of concerns for the future, attention to current feeling-states heightens. Appreciation for the fragility and value of human life increases, and long-term relationships with family and friends assume unmatched importance. Because of the inextricable association between age and time left in life, the theory maintains that ag-

ing is associated with preferences for and increased investment in emotionally close social relationships, as well as increased focus on other less interpersonal emotional goals. This age-related motivational shift leads to alterations in the dynamic interplay between individuals and their environments, so that optimization of socioemotional experience is prioritized in later life.

SELECTIVE SOCIAL INTERACTION ENHANCES EMOTIONAL ASPECTS OF LIFE

The program of research we have pursued over the years began with consideration of the highly reliable decline in social contact evidenced in later life and concern for the potential emotional consequences of this reduction. Because human emotions develop within social contexts, and throughout life the most intense emotional experiences, such as anger, sadness, jealousy, and joy, are intimately embedded within them, do fewer social contacts entail emotional costs?

Early theories in psychology and sociology most definitely presumed that reductions in social contact take a toll on emotional life. Although emotional quiescence was in some theories considered the cause and in others the consequence of reduced social contact, for many years no theories contested the idea that emotional experience suffers in old age. Jung (1933) proposed that emotions become progressively generated from internal sources and detached from external events when he wrote that the "very old person . . . has plunged again into the unconscious, and . . . progressively vanishes within it" (p. 131).

Our research on social networks,

Recommended Reading

- Carstensen, L.L., & Fredrickson, B.L. (1998). (See References)
- Carstensen, L.L., Isaacowitz, D.M., & Charles, S.T. (1999). (See References)
- Magai, C., & McFadden, S.H. (1996). *Handbook of emotion, adult development, and aging*. San Diego: Academic Press.
- Schaie, K.W., & Lawton, M.P. (Eds.). (1997). *Annual review of gerontology and geriatrics: Vol. 17. Focus on emotion and adult development*. New York: Springer.

however, reveals that even though, overall, social networks are smaller in old age, they continue to include comparable numbers of very close relationships throughout later adulthood (Lang & Carstensen, 1994). The reliable age-related decrease in the size of social networks instead appears to result from circumscribed reductions in relatively peripheral relationships. These reductions are not accounted for by poor physical health or declining cognitive status and are not restricted to particular personality styles (Lang & Carstensen, 1994; Lang, Staudinger, & Carstensen, 1998). Moreover, longitudinal analysis suggests that reduction in contact with acquaintances and selective investment in fewer social relationships begins early in adulthood (Carstensen, 1992). It appears that social networks grow smaller across adulthood and are increasingly focused on fewer but emotionally significant social partners.

Socioemotional selectivity theory views the reduction in social contact as a proactive process associated with the growing desire to have meaningful experiences. We do not regard aging adults as "budding hedonists," directing social interactions solely to those relationships characterized by positive emotions; rather, we argue that the realization that time is limited directs social behavior to experiences that are emotionally meaningful. Moreover, the character of emotional responses changes. Awareness of constraints on time transforms once lighthearted and uniformly positive emotional responses into complex mixtures in which poignancy reigns. Spending time with a close friend, for example, with the awareness that it may be among the last of such occasions inevitably entails sadness along with joy. Our research, along with other findings concerning terminally ill patients, suggests that the prototypical emotional re-

sponse to approaching endings is not morbid. On the contrary, people facing the end of life often say that life is better than ever before. We understand this evaluation to reflect experiences that are richer, more complex, and emotionally meaningful.

According to the theory, restricting the social world to longtime friends and loved ones in later life is adaptive, reflecting careful allocation of resources to the relationships that engender pleasure and meaning. Such a view helps to reconcile the findings that despite a myriad of well-documented losses and overall reductions in social contact, older people, on average, are even more satisfied with their lives than younger people (Diener & Suh, 1997) and, with the exception of the dementias and other organic brain syndromes, display lower prevalence rates of all psychiatric disorders, including depression (Lawton, Kleban, & Dean, 1993).

**WHEN TIME IS LIMITED,
EMOTIONALLY CLOSE
SOCIAL PARTNERS
ARE PREFERRED**

If changes in social networks involve a proactive pruning process, explicit preferences for close over less close social partners should be evident in people faced with limited time. In a series of studies, we found age-related differences in social preferences and also demonstrated the notable malleability of these age differences as a function of perceived time.

In this series of studies, we presented research participants with three prospective social partners, instructed them to imagine that they had 30 min free and wished to spend it with another person, and asked them to choose a social partner from among the three options.

Next, the research subjects were presented with experimental conditions in which future time was hypothetically constrained or expanded and were asked once again to indicate their preferred social partners.

The social partners subjects could choose from represented familiar and unfamiliar social partners who were more and less likely to satisfy different social goals: (a) a member of the immediate family, (b) the author of a book the subject just read, and (c) a recent acquaintance with whom the subject seemed to have much in common. Our previous work had shown that all three options promised enjoyable interactions and represented the conceptual categories we intended them to represent. A family member, for example, represents to most people an emotionally close social partner; the author represents a good source of new information; the acquaintance offers prospects in the future. We expected that approaching endings would be associated with preferences for the emotionally meaningful partner.

In our first study using this paradigm, we compared social choices of young and old research participants (Fredrickson & Carstensen, 1990). We hypothesized that older people, but not younger people, would display preferences for the familiar social partner. In a second condition, we imposed a hypothetical time constraint by asking subjects to imagine that they would soon be moving across the country (by themselves) but currently had 30 min free. We then had them choose again from among the same set of social partners. As predicted, older people chose the familiar social partner under both experimental conditions. In the open-ended condition, younger people did not display such a preference. In the time-limited condition, however,

younger adults displayed the same degree of preference for the familiar social partner as the older subjects.

Recently, we replicated these findings in Hong Kong (Fung, Carstensen, & Lutz, *in press*), and even in this very different culture, older people, compared with their younger counterparts, showed a relative preference for familiar social partners. In the Hong Kong study, subjects were asked to imagine an impending emigration as the time-limiting condition. The findings replicated our previous ones. In the emigration condition, younger people also displayed a preference for familiar social partners.

In a third study, instead of limiting time, we presented American subjects with a hypothetical scenario that expanded time. Research subjects in that condition were asked to imagine that they had just received a telephone call from their physician telling them about a new medical advance that virtually ensured that they would live 20 years longer than they expected in relatively good health (Fung *et al.*, *in press*). We also included the time-unspecified condition, which replicated previous findings. Older, but not younger, subjects expressed strong preferences for the familiar social partner. However, in the expanded-time condition, the preference observed among older subjects disappeared: Older and younger subjects' choices were indistinguishable. Thus, when the time constraint associated with age is removed, older individuals' preferences for familiar social partners disappear.

In another line of research, we used an experimental approach based on similarity judgments to examine age differences in the emphasis and use of emotion when forming mental representations of possible social partners. In these studies, research participants sorted

descriptions of a variety of social partners according to how similarly they would feel interacting with them. A technique called multidimensional scaling was used to identify the dimensions along which these categorizations were based, and we also computed the weights various subgroups placed on particular dimensions.

In three different studies, we found evidence that place in the life cycle is associated with the salience of emotion in mental representations (Carstensen & Fredrickson, 1998; Fredrickson & Carstensen, 1990). Two of these studies examined age differences in the weights placed on the emotion dimension, and a third study compared how the dimensions were weighted by groups of men who were the same age but varied according to their HIV status. In this way, age was disentangled from place in the life cycle. Findings from all three studies suggest that when individuals are closer to the end of their lives, whether because of age or health status, emotion is more salient in their mental representations of other people.

In light of findings suggesting increased salience of emotion among people approaching the end of life, we hypothesized that age differences in memory for emotional versus nonemotional material might be evident as well. That is, if emotional information is more salient, it should be processed more deeply than nonemotional information and therefore remembered better subsequently. To test this hypothesis, we employed an incidental memory paradigm and examined age differences in the type of information recalled (Carstensen & Turk-Charles, 1994). Older and younger adults read a two-page narrative that described a social interaction and contained comparable amounts of neutral and emotionally relevant information. Roughly 45 min later, after

completing a series of unrelated tasks, participants were asked to recall all that they could about the passage. Responses were transcribed, and the information in them was classified as either emotional or neutral. The proportion of emotional material correctly recalled from the original text was related to age; the proportion of recalled information that was emotional information was greater for older adults than younger adults. The differences in proportions were driven by a decrease in the amount of neutral information recalled by older adults, and not by an increase in their recall of emotional information. We speculate that the increased salience of emotion may have cognitive costs, in this case a focus on emotional information at the expense of nonemotional information, but these ideas are as yet untested (*cf.* Isaacowitz, Charles, & Carstensen, *in press*).

Thus, whether one asks people directly about the types of social partners they prefer, examines the ways in which people mentally represent social partners, or measures the proportion of emotional and informational material people remember, those people approaching the end of life appear to place more value on emotion, choosing social partners along affective lines and processing emotionally salient information more deeply.

**THE INTEGRITY OF THE
EMOTION SYSTEM IS
WELL MAINTAINED IN
OLD AGE**

Do older adults experience emotions similarly to younger adults, or do age-related biological changes—from facial wrinkles to alterations in the central nervous system—degrade emotional experience? Despite numerous social

reasons that could increase the likelihood of negative emotional experiences and biological reasons that might appear to decrease the ability to control them, research findings suggest the opposite.

A biological argument for the reduction of self-reported negative experiences lies in the notion of a reduced capacity to feel emotions. If emotions are not felt as strongly physiologically, they will not be subjectively perceived, and consequently, they will not be reported. However, findings from laboratory studies in which emotions are induced speak against a reduced-capacity argument. In a study measuring subjective experience, spontaneous facial expression, and psychophysiological responding (Levenson, Carstensen, Friesen, & Ekman, 1991), subjective intensity of emotional experience, outward facial expression, and the specific profiles of physiological activation were indistinguishable among older and younger adults. Interestingly, however, the overall level of physiological arousal was significantly reduced among the elderly. Similar reductions in levels of physiological arousal were observed in a study of married couples we describe later (Levenson, Carstensen, & Gottman, 1994).

AGE DIFFERENCES IN EMOTIONAL EXPERIENCE ARE POSITIVE

In addition to the findings concerning intact physiological mechanisms and greater emotional salience, there is evidence pointing to greater overall well-being—that is, less negative emotion and equivalent if not greater levels of positive emotions—among older adults compared with younger adults. Survey studies suggest that levels of positive affect are similar across successively older age cohorts, but a reliable reduction in negative af-

fect is observed, and in studies finding reductions in positive affect, a closer analysis of the findings suggests that a circumscribed reduction in surgency (i.e., excitability) may account for this reduction. Excitement and sensation seeking, for example, are relatively reduced in old age. Other positive emotions, such as happiness and joy, are maintained (Lawton et al., 1993; Lawton, Kleban, Rajagopal, & Dean, 1992).

We recently completed a study in which emotions were sampled in everyday life (Carstensen, Pasupathi, & Mayr, 1998). Research participants spanning the ages 18 to 94 years carried electronic pagers and indicated on a response sheet the degree to which they were experiencing each of 19 positive and negative emotions at random times throughout the days and evenings for a week-long period. Findings revealed no age differences in the intensity of positive or negative experience. However, the frequency of negative emotional experience was lower among older than younger adults.

Data collected in this experience-sampling study also allowed us to explore the postulate that emotional experience is more mixed among older than younger people. In day-to-day life, people can experience multiple emotions in response to an event. Socioemotional selectivity theory predicts that emotional experience becomes more multifaceted with age because awareness of limited time elicits positive emotions and negative emotions, thus changing the very character of the experience. We tested this hypothesis in two ways. First, we computed the simple correlation between positive and negative emotional experience. Although, as expected, the correlation between positive and negative emotions was low, it was positively and significantly associated with age. That is, older adults

tended to experience mixed positive and negative emotions more than younger adults. Second, with the use of factor analysis, we computed for each research participant the number of factors that best characterized his or her responses over the course of the study. More factors were required to account for older people's responses, suggesting that their emotional reactions were more complex or differentiated.

Thus, studies that measure subjective emotional experience, either in the laboratory or as they occur in everyday life, speak against an unqualified reduced-capacity argument. Once elicited, positive and negative emotions are experienced subjectively as intensely among the old as the young. Interestingly, the few studies that have measured autonomic nervous system activity have found that the strength of physiological arousal is reduced in the elderly. Whether the reduction is emotion-specific or due to more global age-related degradation of the autonomic nervous system remains unclear. Either way, to the extent that lessened physiological arousal is associated with less subjective discomfort, it may have serendipitously positive consequences. As P. Baltes (1991) argued cogently, deficits in circumscribed domains can sometimes prompt growth in other domains. Reduced physiological arousal associated with negative emotions may represent a case in point, a matter to which we turn in the next section.

OLDER PEOPLE REGULATE THEIR EMOTIONS BETTER THAN YOUNGER PEOPLE

Socioemotional selectivity theory maintains that an emphasis on emotional goals leads to active efforts on the part of individuals to emphasize and enhance emotional

experience. Existing empirical evidence from cross-sectional studies about perceived control over emotions is clear: Compared with younger adults, older adults report greater control over emotions, greater stability of mood, less psychophysiological agitation, and greater faith in their ability to control the internal and external expression of emotions. Remarkably similar age-related patterns have been found across five diverse samples: Catholic nuns; African, European, and Chinese Americans; and Norwegians (Gross et al., 1997).

The consistency of findings across these diverse ethnic, religious, and regional groups reduces concern that the findings reflect stable differences among age groups (*viz.*, cohort effects), as opposed to aging *per se*. In other words, although cohort effects cannot be ruled out entirely, the reliability of the profile across very different types of samples at least speaks against the alternative that emotional differences are unique to younger and older generations of white Americans.

Findings from three other recent studies also reduce the concern that older people's subjective sense that they have good control over their emotions is limited to their beliefs and fails to reflect age differences in actual control. First, Lawton, Parmelee, Katz, and Nesselrode (1996) examined reported negative affect sampled during the course of a 1-month period in a group of adults. Not only did older adults report relatively low levels of negative affect, but they varied little over time.

Second, in the experience-sampling study described earlier (Carstensen et al., 1998), we examined the probability that negative or positive emotions would occur given their occurrence at the immediately preceding time when subjects reported their emotions. Us-

ing the 35 emotion samples collected over a 1-week period for each subject, we examined the duration of positive and negative emotional experience. As did Lawton et al. (1996), we found that the duration of negative emotions was shorter for older than younger adults; interestingly, the natural duration of positive emotional experience was similar for old and young adults (Carstensen et al., 1998). Thus, even when emotions are sampled close to the time they occurred, so that global self-evaluations are avoided, similarly positive profiles of emotional experience are revealed.

Third, we conducted a study involving observations of married couples discussing emotionally charged conflicts in their relationships. Resolution of interpersonal conflict, especially in intimate relationships, provides an opportunity to examine a special case of emotion regulation. Effective resolution of marital conflict requires that spouses deal simultaneously with their own negative emotions and the negative emotions expressed by their partner. In this study, we hypothesized that older couples resolve conflicts better than their middle-aged counterparts. Middle-aged and older couples, all of whom had been married many years, were asked to identify a mutually-agreed-upon conflict area and then to discuss the conflict with one another toward its resolution (Carstensen, Gottman, & Levenson, 1995; Carstensen, Graff, Levenson, & Gottman, 1996; Levenson, Carstensen, & Gottman, 1993; Levenson et al., 1994). Discussions were videotaped and psychophysiological responses were measured throughout the interaction. As predicted, compared with middle-aged couples, older couples displayed lesser overall negative affect, expressing less anger, disgust, belligerence, and whining in their discussions. In addition, older

couples were more likely to express affection to their spouses during the exchange, interspersing positive expressions with negative ones. The pattern appears to be highly effective in curbing the negative affect typically associated with emotionally charged discussions.

Thus, older adults are notably effective at managing negative emotions. This finding, in combination with findings that positive emotions are maintained in frequency and duration during old age, paints a picture that is quite positive. The findings are in keeping with socioemotional selectivity theory. In the studies reviewed, older individuals limited negative emotional experiences in day-to-day life more effectively than younger individuals. Similarly, older couples engaged in discussions of personally relevant topics in a way that limited their negativity. If, as the theory suggests, people become increasingly aware of endings toward the end of life, aging individuals are increasingly motivated to optimize the emotional climate of their lives. It is not that negative emotions do not occur or that felt emotions are less intense. Rather, negative emotions are better regulated.

CONCLUSION

The study of emotion in old age is relatively young, yet within a short period of time, empirical findings have suggested a reasonably cohesive profile of emotional experience and emotion regulation in the later years. Efforts on the part of multiple investigative teams have documented the ubiquitousness of emotion in cognitive processing, from mental representations to social preferences; stability in the frequency of positive affect; reductions in negative affect;

reduced physiological arousability; and superior regulation of emotion.

Of course, a comprehensive understanding of emotion in later life is only beginning to take shape. Greater emphasis on emotional aspects of life probably entails benefits for some areas of functioning and costs to others. The manner in which emotions change and the conditions associated with such change remain elusive. The role of perceived time in emotional experience, suggested in socioemotional selectivity theory, requires further investigation to identify the precise conditions under which emotions grow mixed, are better regulated, and are less negative as people age. Implications of the reduction in the physiological arousal accompanying emotional experience also demand clarification.

The profile of empirical evidence reviewed here provides a far different picture of old age than the literatures on cognitive aging and physical health. Numerous problems are associated with old age. Health insults, loss of economic and political status, and deaths of friends and loved ones are but a few of the problems associated with old age, yet research on emotion and aging suggests that the emotion domain may be well preserved and perhaps selectively optimized (M.M. Baltes & Carstensen, 1996). The inherent paradox of aging refers to the fact that despite loss and physical decline, adults enjoy good mental health and positive life satisfaction well into old age. We suggest that the uniquely human ability to monitor the passage of time, coupled with the inevitable constraints of mortality, heightens the value placed on emo-

tional aspects of life and deepens the complexity of emotional experience as people age.

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Note

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