Not All Negative Emotions Are Equal -

Sadness and Anger Develop Differently and Their Adaptivity Is Age-Graded

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Abstract

We argue that a comprehensive understanding of emotional development across adulthood must go beyond broad dimensions of affect and consider discrete emotions. Current evidence focuses on sadness and anger, two negative emotions that exert contrasting age trajectories because anger has high adaptive value in young adulthood, when people have abundant resources and need to carve out a niche in society, whereas sadness has high adaptive value in old age, a time of declining resources that requires adaptation to increasingly unattainable goals. We conclude that our position about the age-graded experience and adaptive value of emotions should hold for a variety of negative and positive emotions.

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An important finding in the field of emotional aging is that older, as compared to younger, adults process affective information by placing less emphasis on negative aspects and more emphasis on positive aspects [1]. Older adults might also have a greater tendency to avoid situations that could elicit negative emotions, and there is evidence that they are better able to down-regulate negative emotions if such situations cannot be avoided [2]. Many aging researchers believe that these age-related changes in affective information processing and emotion regulation help maintain affective well-being in older adulthood despite an increasing number of age-related losses and limitations [3].

Although a focus on positive, rather than negative, experiences can be useful, we argue that sustaining long-term levels of well-being and health might require people of all ages to experience and endure negative emotions in certain circumstances [4]. As stated by emotion researchers, negative emotions can motivate adaptive behavior and provide important information for the self and others [5,6,7]. As such, it would be unwise to avoid or downregulate all negative emotions at all times. We will show in our example of anger and sadness that it can be functional to experience and endure those negative emotions that facilitate coping with age-specific developmental tasks.

Anger in Young Adulthood

Many young adults have plenty opportunities and resources to develop their potential [8]. Their primary developmental tasks are to establish themselves, find a niche in society, and build a foundation for future life by making important choices regarding family, work, and life style [9,10]. As compared to older adults, younger adults have more long-term goals, perceive higher personal control, and pursue goals more persistently [11,12,13]. Socially, young adults are supposed to learn with and from others, negotiate conflicts, and test when to give in and when to assert one's own interests [14,15]. Anger may be experienced relatively

frequently and intensely in young adults, considering they encounter common obstacles in the pursuit of their relatively large number of goals (e.g., when competing for resources or being held back). In addition, anger is characterized by certain situational control appraisals (high personal control), action tendencies (tenacious goal pursuit), and social motivations (showing others their place [6,16, 17]) that are all likely to be readily accessible particularly in young adulthood. Thus, relative to older adults, young adults should experience anger more intensively and frequently. Moreover, if anger helps young adults to overcome goal-related obstacles, it could benefit their well-being and health [18].

Sadness in Old Age

In old age, people face an increasing number of losses in fundamental resources and frequently need to disengage from unattainable goals [19,20]. Thus, the elicitor of sadness, that is the appraisal of a situation as an irreversible loss [6], should be particularly salient in old age. In addition, sadness is characterized by certain situational control appraisals (limited personal control), action tendencies (goal disengagement), and social motivations (showing the need for comfort and support; [21,17]) that are all likely to be highly accessible in old age. As compared with young adults, older adults should therefore experience sadness more intensively and frequently. Moreover, sadness could be conducive to older adults' well-being and health [18] if it facilitates goal disengagement [22] and social support [23].

Empirical Evidence

A growing body of evidence from laboratory studies suggests that older, as compared with younger, adults react with less anger to various stimuli [24,25,26,27,28,29,30]. By contrast, age differences in sadness reactions are often either reversed [30,31,32,33,34] or nonsignificant [27,28,29,35]. Age differences in the experience of anger and sadness have also been examined in people's daily lives. For example, a longitudinal study of German adults documented that the frequency of anger declined steadily from young adulthood to old age. The frequency of sadness, by contrast, remained stable during most of adulthood and

increased only during old age [36]. We replicated and qualified this finding in a longitudinal study from Canada, suggesting increases in sadness during old age, particularly in older adults who experience a loss in personal control [37].

We have also examined whether the adaptive value of sadness and anger is age-graded. To this end, a study of old and very old adults showed that the adverse health effects of anger (but not sadness) became paramount in advanced old age, predicting high levels of inflammatory processes and chronic disease [38]. Replicating our earlier work [39], this evidence suggests that the emotion-health link emerges and becomes stronger during older adulthood. It further implies that not all negative emotions might compromise health in old age [40], but most likely anger. Another longitudinal study reported evidence for the idea that sadness, but not anger, produces adaptive effects in old age. This study showed that when older adults have high chronic stress, as indicated by high cortisol volume, and their sadness corresponds with a tendency to disengage from unattainable goals and intractable stressors, the intense experience of sadness (but not anger) could pave the way for maintaining longer-term well-being [22].

One alternative interpretation of the discussed evidence might be that an emotion's level of arousal, rather than its function, could drive the obtained age effects. This explanation assumes that anger involves a higher arousal than sadness. Moreover, it considers that an age-related reduction in the organism's ability to downregulate physiological arousal could be responsible for older adult's avoidance of anger, and explain the adverse consequences of anger if it cannot be prevented [2,4]. Findings from three studies speak against this possibility, however. First, even if arousal levels of the two emotions were held constant in the laboratory, research showed evidence for multidirectional age differences in sadness and anger [28,31]. Second, age-related increases in the adverse health effects of anger were obtained, controlling for high-arousal negative affect [37]. Third, other negative emotions with high levels of arousal such as fear did not decline with age [36].

Outlook

The reviewed literature on multidirectional age differences in anger and sadness is consistent with a discrete emotion approach. Nonetheless, a comprehensive understanding of emotional development necessitates further research.

The Variety of Negative and Positive Emotions

Previous work in the field of emotional aging largely took a dimensional approach and focused on the valence of affective information or experiences [3]. However, emotions of the same valence can change in opposite directions with age, such that aggregation of these emotions is associated with a loss of critical information. Given our focus on sadness and anger, the questions for future studies entail how other negative emotions such as fear, guilt, or shame develop in adulthood. Similarly, the study of discrete positive emotions will be important. For example, calmness (reflecting a present-focus and serving recovery), but not excitement (reflecting a future-focus and triggering the search for novelty), seems to become more salient as people advance in age and contributes to older adults' well-being and health [42]. Other positive emotions such as joy (creating the urge to play or be playful) or interest (triggering the urge to explore) differ in their adaptive functions as well [43,44] and could contribute to age-differential patterns of successful development.

Midlife and Advanced Old Age

We have yet to elaborate on emotional development in midlife. Midlife is comparatively multi-faceted [45]. While it involves physical changes that reflect burdensome harbingers of old age, most middle-aged adults have established themselves and feel in control or competent in many areas of life. Midlife also involves great responsibility and generativity, as middle-aged adults represent a bridge and frequently provide for both young and older adults. Thus, it is possible that not only the challenges of midlife are particularly complex, but the emotions that are experienced as well [46]. With respect to anger and sadness, neither emotion seems to be clearly prominent in middle adulthood [36]. This pattern

may be observed because the many tasks and goals middle-aged adults have to accomplish and push through could elicit anger, and, at the same time, emerging worries about impending age-related losses might elicit sadness.

It is also worthwhile to consider the distinction between early and advanced old age [47]. Individuals in early old age still experience continuity and growth in some areas of life and their losses are often not severe enough to render their goal pursuits impossible. By contrast, individuals in advanced old age become increasingly concerned with multiple and severe losses, threatening their independence and autonomy [48]. Some of the presented findings reflect the idea that old age encompasses two different phases. For example, in advanced old age, an age-related increase in sadness is more pronounced and anger becomes particularly harmful [36,38].

Exploring the Role of the Context for Age Differences in Emotion More Fully

Our view of emotional aging draws attention to the role that contexts play in understanding long-term emotional development [50, 51]. As discussed, discrete emotions are experienced in specific situational contexts, and their prevalence and function differ for individuals depending their chronological age and the associated unique configuration of developmental opportunities and constraints.

With respect to the situational contexts that trigger discrete emotions, there are further questions to be addressed. For example, although there is clear evidence that older adults react less angry to personal problems and conflicts than their younger peers, they seem to react more indignantly to political and social injustices [52]. There is also evidence that the type of loss may determine the size of age differences in the experience of sadness [28]. A systematic investigation of the role of (non-emotional) features of the situational context in determining individual and age-related differences in emotional reactions would be desirable. In doing so, it will be essential for laboratory studies to develop emotional stimuli that have been validated in young and older samples. For example, anger stimuli are not suitable for age-differential

research if they elicit primarily anger in one age group and a mix of, or entirely different emotions, in other age groups [49]. Importantly, interpretation of the evidence is difficult or impossible if the stimuli have not have not been carefully developed and validated.

Broader contextual factors that together with age shape individuals' developmental opportunities and constraints might include gender, socioeconomic status, ethnicity, and culture. In different lines of research, each of these factors have been thought to influence how individuals react emotionally to everyday events and whether these emotional reactions ultimately contribute to successful solutions to their problems at hand [53,54,55,56]. For example, because anger is potentially harmful to social relationships, signals dominance, and serves to protect self-interest, it may be less frequently expressed and considered less functional in Eastern cultures, which place more emphasis on social interdependence and harmony than Western cultures [57]. Anger might also be expressed less by women as compared to men, particularly in cultures which provide less power and status to female than male roles [58]. The latter example indicates that future research is needed to examine the combined and interactive effects of different contextual factors. From a lifespan perspective, it would be interesting to know whether the effects of culture, gender, or social class are affected by chronological age. For example, age-related developmental losses could become paramount in the context of other factors that relate to a lack of resources (e.g., low socio-economic status) and increase the experience of specific emotions to adjust to such circumstances (e.g., sadness).

Conclusions

The reviewed literature supports the premise of multi-directional age differences in the experience of anger and sadness. Moreover, the evidence is consistent with the idea that sadness and anger exert age-differential effects on well-being and health. We hope that we could make clear that a discrete emotion approach is fruitful for understanding emotional aging and stimulate others to explore with us the many questions that need to be answered.

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