A Lifespan Perspective on Emotion Regulation, Stress, and Well-Being in the Workplace

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Abstract

Researchers in the field of occupational stress and well-being are increasingly interested in the role of emotion regulation in the work context. Emotion regulation has also been widely investigated in the area of lifespan developmental psychology, with findings indicating that the ability to modify one’s emotions represents a domain in which age-related growth is possible. In this chapter, we integrate the literatures on aging, emotion regulation, and occupational stress and well-being. To this end, we review key theories and empirical findings in each of these areas, summarize existing research on age, emotion regulation, and stress and well-being at work, and develop a conceptual model on how aging affects emotion regulation and the stress process in work settings to guide future research. According to the model, age will affect (1) what kinds of affective work events are encountered and how often, (2) the appraisal of and initial emotional response to affective work events (emotion generation), and (3) the management of emotions and coping with affective work events (emotion regulation). The model has implications for researchers and practitioners who want to understand and facilitate successful emotion regulation and stress reduction in the workplace among different age groups.

Keywords: aging, age, lifespan, emotion regulation, stress, strain, well-being
Progressively, the workforce is aging, and organizations are increasingly interested in attracting, retaining, and motivating older employees. In spite of this demographic trend, existing theories and empirical research on work stress and well-being have by and large ignored possible age-related differences in the occupational stress process (see Rauschenbach & Hertel, 2011; Rauschenbach, Krumm, Thielgen, & Hertel, in press, for two recent exceptions). Existing studies have either included only young adults (such as employed college students), or have treated age as a noise variable that needed to be controlled. Similarly, extant research on the regulation of emotions in the workplace as a way to prevent occupational stress and increase employee well-being has not paid attention to age-related differences (Lawrence, Troth, Jordan, & Collins, 2011). This leaves us with a striking lack of knowledge about work stress and emotion regulation in aging employees who make up an increasingly larger proportion of the workforce.

Fortunately, several decades of research in lifespan developmental psychology have created a rich knowledge base on general age-associated changes in life contexts as well as emotional experience and regulation, which can form a fruitful basis for theoretical assumptions about how aging affects work stress and well-being. For example, research shows that emotional changes with age are surprisingly positive and characterized by maintenance and even growth (Charles & Carstensen, 2010; Scheibe & Carstensen, 2010). At the same time, such positive age trends in emotional functioning are qualified by important individual and contextual differences. The goal of this chapter is to weave together two hitherto disconnected streams of literature – the literature on occupational stress, well-being, and emotion regulation and the literature on emotional aging – to develop a model of how aging and age-related changes affect emotion regulation and the stress process in work settings. The model is depicted in Figure 1, and its elements and underlying propositions will be explained in the following sections.
We will first provide the foundations of the model by reviewing how affective work events influence employee strain and well-being, and we will describe how emotion generation and emotion regulation may impact on stress and well-being processes. Secondly, we describe when and how emotional experience and reactivity change across the adult life span, and how these changes may be driven by age-related changes in life contexts, emotion generation, and emotional regulation. Finally, we integrate these perspectives to outline an integrative set of propositions on how the process of aging creates shifting internal and external contexts that affect occupational stress and well-being processes via event occurrence, emotion generation, and emotion regulation. We close by proposing directions for future research.

OCCUPATIONAL STRESS AND WELL-BEING AND THE ROLE OF EMOTION REGULATION

The basic elements of our model shown in Figure 1 are adapted from the transactional stress model (Lazarus & Folkman, 1984), which is a well-established stress theory that outlines the processes leading from work stressors (i.e., objective events in the work environment that are perceived as challenging by most employees) to employee strain (i.e., short-term psychological reactions to the stressor). The transactional stress model suggests that people’s responses to stressors are influenced by individual differences in stressor appraisal (i.e., people’s initial interpretation and re-interpretation of the objective stressors and their own resources) and coping strategies (e.g., problem-focused and emotion-focused coping; Lazarus & Folkman, 1984). Based on affective events theory (Weiss & Cropanzano, 1996), we include not only negative work events (i.e., stressors) but also positive work events as predictors in our model. In addition, our outcomes comprise both employee strain and well-being as emotional responses. The link between affective events and responses is mediated by attention and appraisal processes.
In recent years, increasing attention has been paid to emotion-regulatory processes as moderators of relationships among occupational stressors, strain, and well-being (Lawrence, et al., 2011). As noted by Gross and Thompson (2007), people do not just passively witness their emotional reactions to the events that occur, including affective work events, but are trying to influence what they feel, how intensely they feel and show their emotions, and how long emotions last. This perspective suggests that emotional reactivity to a discrete event is the result of two interactive processes, emotion generation and emotion regulation (Gross, Sheppes, & Urry, 2011). *Emotion generation* refers to the initial emotional response that arises when persons encounter a situation that impedes or facilitates their personal goals, allocate attention to the goal-relevant aspects of the situation, and make the primary appraisal that the situation facilitates or interferes with current goals (Gross & Thompson, 2007; Lazarus & Folkman, 1984). For example, encountering an angry customer on the phone may impede a call center employee’s goal to do his job smoothly and quickly, which when attended to and appraised as such, may lead to a subjective, physiological, and behavioral anger response.

*Emotion regulation* refers to a person’s attempt to modify the emotion-generative process, such as when the call center employee tries to reframe the situation to feel less angry or to not let his anger show in his voice. This example illustrates the concept of emotional labor, defined as “the effort, planning, and control needed to express organizationally desired emotion during interpersonal transactions” (Morris & Feldman, 1996, p. 987). Even though it is difficult, if not impossible, to dissect the processes of emotion generation and regulation empirically (Gross, et al., 2011), the distinction is useful when trying to understand age differences in emotional responses to affective work events. As shown in Figure 1 and discussed in the next section, aging-associated processes can influence the generation and the regulation of emotions.
Emotions can be regulated in many different ways. Gross’ (1998) influential model of emotion regulation distinguishes five families of emotion regulation strategies according to the time point that they intervene in the emotion-generative process. Antecedent-focused strategies intervene before the emotion-generative process has fully unfolded, and hence, before the emotional response has been fully activated. These include situation selection (e.g., postponing or avoiding an unpleasant phone call), situation modification (e.g., saying something to calm down an angry customer), attentional deployment (e.g., ignoring an angry commentary by the customer), and cognitive change (e.g., reframing the unpleasant phone conversation as a learning opportunity). Coping strategies as discussed in the transactional stress model (Lazarus & Folkman, 1984) can be placed in this framework; problem-oriented coping would mostly fall under situation modification, and emotion-focused coping would fall under either situation modification (e.g., seeking emotional support) or cognitive change (e.g., reappraisal). The family of response-focused strategies targets the emotional response itself; thus, they act after the emotional response is fully evolved. An example is suppressing any outward sign of anger when feeling angry subjectively and physiologically. A related distinction between strategies proposed by Lawrence et al. (2011) is that between emotion experience regulation (comprising all four families of antecedent-focused strategies) and emotion expression regulation (comprising the response-focused strategies of suppression or amplification).

In the literature on emotional labor, deep acting is an example of emotional experience regulation and has been mapped onto attentional deployment and cognitive change; while surface acting corresponds to emotional response regulation (Grandey, 2000). Sometimes, employees’ emotional experience aligns naturally with organizational display rules, such that no emotion regulation is necessary, at least at the conscious level; this is called naturally felt emotions (Diefendorff, Croyle, & Gosserand, 2005). Many studies have
shown that people’s habitual use of emotional labor strategies is an important moderator of the link between interpersonal stressors and occupational well-being (Lawrence, et al., 2011). Consistent with predictions by Gross (1998) that response-focused emotion regulation strategies are less effective and more costly than antecedent-focused strategies, surface acting appears to be the most harmful emotional labor strategy as it is linked with increased levels of emotional exhaustion and depersonalization. In contrast, deep acting does not appear to impair well-being; positive associations were found between habitual use of deep acting and personal accomplishment, job satisfaction, and work performance (Lawrence, et al., 2011). Naturally felt emotions are assumed to require the least mental energy and thus, are the least harmful (Diefendorff, et al., 2005).

Further evidence that habitual emotion regulation strategy use is linked to occupational strain and well-being comes from research on psychological detachment, the active attempt to refrain from job-related thoughts when being away from the workplace – a form of attentional deployment. For instance, Sonnentag, Binnewies, and Mojza (2010) demonstrated that psychological detachment buffered the detrimental effects of high job demands on emotional exhaustion, psychosomatic complaints, and work engagement. Additionally, the large literature on coping supports the moderating role of emotion-regulation in occupational stress. For example, a two-wave panel study with blue collar workers across one year showed that seeking emotional support during times of distress (a form of emotion-focused coping, or situation modification) buffered the effect of emotional job demands on emotional exhaustion (Van de Ven, van den Tooren, & Vlerick, 2013). Using experience-sampling, Schmitt, Zacher, and Frese (2012) showed that the use of selection, optimization, and compensation strategies – which represent examples of situation selection, modification, and coping – was positively related to daily job satisfaction, and buffered the positive relationship between daily problem solving demands and fatigue.
In sum, the transactional stress model and models of emotion regulation highlight the key factors and processes leading from affective work events to occupational strain and well-being, as well as potential moderators of these processes (Figure 1). Employee age may not only impact directly on core factors in the stress and well-being process, but may also influence relationship among affective work events, strain, and well-being.

HOW AGING AFFECTS EMOTIONAL EXPERIENCE AND REACTIVITY TO AFFECTIVE WORK EVENTS

In the following section, we review the state of knowledge on age-related differences in emotional experience and reactivity, and present different explanations for the generally positive trajectory of emotional aging, which likely impacts how older employees experience and react to affective work events.

Age Differences in Everyday Affective Experience

Studies of affective experience across adulthood show that the overall profile of affective experience in daily life becomes more positive with age at least until after people reach retirement age (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Kessler & Staudinger, 2009; Lawton, Kleban, Rajagopal, & Dean, 1992). For example, a recent longitudinal study of repeatedly sampled emotional experience across 10 years showed increased affect balance (operationalized as the average difference between momentary positive and negative affect) with age until a peak is reached at age 64, after which the increase levels off (Carstensen et al., 2011). The same study and others (e.g., Brose, Schmiedek, Lövdén, & Lindenberger, 2011) found that mood fluctuations decrease as people age, and periods of negative mood are more short-lived than in young adulthood (Carstensen, et al., 2000).

Age-related changes in the personality traits neuroticism and extraversion, as well as general job attitudes, parallel age trajectories towards more positive and stable emotional
lives. A comprehensive meta-analysis on personality change across adulthood found that just as younger adults differ from each other, so do older adults, with rank-order stability remaining largely constant (Roberts & DelVecchio, 2000; Roberts, Walton, & Viechtbauer, 2006). At the same time, mean-level change is found such that mean levels of neuroticism are reduced at older ages, whereas some facets of extraversion – particularly social dominance – are increased. Increased positivity with age is also evident in job attitudes; older employees tend to report higher satisfaction with their job, pay, and supervisor, higher levels of organizational identification and loyalty, and lower levels of burnout and interpersonal conflict (Ng & Feldman, 2010).

A closer look at different types and dimensions of affective life reveals that emotional experiences tend to be less negative and calmer at older ages. On the valence dimension, reduced negative affect is more consistently found than increased positive affect (Senescac & Scheibe, in press). Arousal also matters. Within positive affect, low-arousal positive states (e.g., relaxation, peace of mind) show the strongest age-related increase (Kessler & Staudinger, 2009; Scheibe, English, Tsai, & Carstensen, 2013), while within negative affect, high-arousal states (especially anger) show the strongest age-related decrease (Ross & Mirowsky, 2008; Stone, Schwartz, Broderick, & Deaton, 2010). In sum, there is an age-related increase in the quality and stability of emotional experience in everyday life, which is mainly due to reductions in the experience of negative and high-arousal affective states, such as anger.

Age Differences in Affective Reactivity

Apart from investigating typical emotional experiences in everyday life, lifespan researchers have studied how adults of different ages react to discrete affective events in the laboratory and in daily life. At an early attentional stage, a well-documented finding is the positivity effect, indicating a relative avoidance of negative material and prioritization of
positive material in older adults compared to younger adults (Reed & Carstensen, 2012). For example, when shown pairs of faces, one sad or angry and one neutral, older adults orient away from the negative faces more so than young adults (Mather & Carstensen, 2003) and are better able to inhibit negative information when asked to do so (Hahn, Carlson, Singer, & Gronlund, 2006). When given a choice between positive and negative information, older adults show a relative preference for the positive material (e.g., Charles, Mather, & Carstensen, 2003). Related biases are found in decision-making and memory for emotional material (Reed & Carstensen, 2012).

Older adults appraise and react to many laboratory stimuli in a less negative way than younger adults (Charles & Carstensen, 2010). In one study where younger and older adults listened to audiotapes of people supposedly making negative remarks about them, the older adults made less critical appraisals of the people speaking and reported feeling less angry, though they felt equally sad (Charles & Carstensen, 2008). According to meta-analytical evidence, physiological responding, in particular heart rate reactivity, is also relatively reduced in older adults in laboratory studies of emotional reactivity, with an important qualification: when the stressful event is highly intense, age differences often reverse and systolic blood pressure reactivity in particular tends to be larger with age (Uchino, Birmingham, & Berg, 2010).

Older adults also appraise daily hassles in their lives less negatively and their affective reactivity to daily stressors is reduced across many (though not all) studies (Riediger & Rauers, in press). Daily hassles are minor stressors, such as arguments, acute health problems, or work overload, which lead to temporary changes in affect (Almeida, 2005). In the large-scale National Study of Daily Experiences, a diary study across eight days with a sample spanning young to old adulthood, relatively older adults were found to appraise daily hassles as less severe than younger adults (Charles & Almeida, 2007). The same study and
others found that affective reactivity (operationalized as increase in negative affect on stress
days compared to non-stress days) tends to be reduced with age, especially for interpersonal
conflicts (e.g., Birditt, Fingerman, & Almeida, 2005). One study also found that physical
reactivity (the occurrence of mild health problems on stress vs. non-stress days) was reduced
with age (Neupert, Almeida, & Charles, 2007). Few studies have considered physiological
dissociation between subjective and physiological responding to daily stressors from middle
to later adulthood: compared to middle-aged adults, older adults displayed less of an increase
in subjective distress but heightened blood pressure reactivity to daily stress.

Important moderators of stress reactivity and age differences therein are also apparent.
First, as the emotional load of daily hassles increases, age differences appear to reverse.
Emotional load could be indicated by high severity, chronicity, or complexity of daily
stressors. Older adults display larger affective reactivity than younger adults when stressors
are weighted by their perceived severity (Mroczek & Almeida, 2004), and larger affective
and physiological reactivity when stressors concern multiple life domains as compared to just
one domain (Wrzus, Müller, Wagner, Lindenberger, & Riediger, 2012).

Second, affective stress reactivity is moderated by chronic stress. Among people with
many chronic health conditions, older adults were found to react more strongly to daily
hassles than younger adults (Piazza, Charles, & Almeida, 2007). Perceiving one’s life as
generally stressful was associated with a higher frequency of stressors in older adults, though
it was also associated with increased affective reactivity to stressors in younger adults
(Stawski, Sliwinski, Almeida, & Smyth, 2008). A study among teachers compared responses
of the autonomic nervous system (heart rate, cortisol excretion, and psychosomatic
symptoms) to work periods of low and high global perceived stress (Ritvanen, Louhevaara,
Helin, Väisänen, & Hänninen, 2006). In young teachers, autonomic responses were elevated
during high work stress periods, relative to low work stress periods. In contrast, older teachers’ autonomic responses remained high even in low work stress periods, indicating reduced recovery from the stress.

Third, affective reactivity is moderated by perceived control. A high sense of mastery was found to buffer reactivity to interpersonal stressors for all age groups, the physical effects of work stressors in young and older adults, and the emotional reactivity to network stressors (something happened to a friend or family member) in middle-aged adults (Neupert, et al., 2007).

Fourth, affective reactivity is moderated by the type of affective work events. Using a sample of service employees, nurses and academics, Mauno, Ruokolainen, and Kinnunen (2012) investigated whether the relationships between a number of indicators of job stressors (i.e., job insecurity, workload, and work-family conflict) and several measures of well-being (i.e., work-family enrichment, job and life satisfaction, vigor at work) were moderated by age. Younger nurses and service employees were less affected by high levels of job insecurity than their older counterparts with regard to some of the outcome variables. In contrast, older service employees and academics were less affected by high levels of workload and work-family conflict, respectively. Thus, what type of event is perceived as stressful may differ by age.

In conclusion, most studies of negative affective reactivity to discrete events indicate that, on average, older adults react less strongly than their younger counterparts. At the same time, affective reactivity and age differences therein are moderated by several factors. High emotion-regulatory load and chronic stress diminish or reverse age advantages, while high personal control buffers against strong reactivity in all age groups. Age differences in negative affective reactivity may also depend on the type of stressor (e.g., interpersonal conflict versus workload).
Explaining Age Differences in Affective Experience and Reactivity

Several explanations have been formulated to account for age-related differences in affective experience and reactivity across adulthood. Four prominent explanations focus on changes in life contexts, biological changes in emotion-generative systems, changes in emotion regulation motivation, and changes in emotion regulation competence (Senescac & Scheibe, in press). These will be reviewed next, together with evidence supporting or qualifying them.

Changes in Life Contexts

A first way in which aging may affect emotional experience and reactivity is via changes in normative demands and control opportunities arising from life phase-specific roles and developmental tasks (Almeida & Horn, 2004). These shifting demands and roles create different life contexts in which affective events are encountered. Young adulthood is often the time where people choose an occupation, start a career, and establish marriage and a family. Midlife is the time where people juggle work and family demands, experience career transitions, re-enter work after years of caring for small children, or renegotiate family relationships. Caregiving tasks in midlife do not only involve children, but increasingly also caring for aging parents (Zacher & Winter, 2011). The later part of the working lifespan falls into the early stages of older adulthood, marked by an increasing prevalence of chronic health problems, cognitive slowing, physical decline, and declining career opportunities. The working lifespan ends with retirement, which is considered a major role change associated with loss of status but also greater freedom in selecting activities of daily life (Wang & Shultz, 2010).

These age-related patterns of changing demands and roles across life have led to the hypothesis that daily life is particularly stressful during midlife, which may explain age differences in occupational stress (Almeida & Horn, 2004; Warr, 1992). This hypothesis is
consistent with findings by Rauschenbach and Hertel (2011) of an inverted U-shaped relationship between employee age and strain, as indicated by both general and daily experience measures. Namely, strain was highest in middle-aged employees (aged 36 to 50 years), relative to younger and older employees, which the authors interpreted as result of increased stress during midlife (see also Warr, 1992; White & Spector, 1987).

But do middle-aged adults really encounter stressful events more frequently than other age groups? Studies of daily hassles among young and middle-aged adults do not fully support this assumption, but instead show that age differences in stressor exposure may depend on the type of stressor. Almeida and Horn (2004) find no difference between younger adults (25-39 years) and middle-aged adults (40-59 years) in the overall number of stressful daily events, but both age groups reported more events than older adults (60-74 years). Neupert et al. (2007) found that middle-aged adults report less interpersonal events (whether an argument or potential argument occurred) than young adults, but equal numbers of work events (whether anything happened at work other than interpersonal conflicts that could be stressful). At the same time, there is consistent evidence that life becomes less stressful after midlife. Studies comparing discrete groups of young or early-middle-aged and older (mostly retired) individuals show that advanced age is associated with reporting fewer daily hassles (Brose, et al., 2011; Folkman, Lazarus, Pimley, & Novacek, 1987; Stawski, et al., 2008).

Age differences in event exposure can account for affective outcomes. It is harder to maintain high levels of well-being when more stressful events are encountered not only because of the accumulation of threats to well-being, but also because perceived global stress is associated with increased reactivity to single events (Stawski, et al., 2008). Indeed, a recent study found that stressor profiles explain part of the age advantages in affective well-being (Brose, Scheibe, & Schmiedek, 2013). Matching groups of young and older adults on contextual factors, including the number of experienced stressors, stressor heterogeneity, and
stressor impact on daily routines significantly diminished age-related differences in affective stability (operationalized as mood fluctuations across 100 days). However, matching of age groups on stressor profiles did not explain why older adults had lower affective reactivity to stressful events. Importantly, midlife has also been identified as a life phase characterized by a peak in personal control in terms of social status and financial resources (Heckhausen, Wrosch, & Schulz, 2010; Lachman, Lewkowicz, Marcus, & Peng, 1994). High levels of personal control reduce affective reactivity to daily stressors (Neupert et al., 2007), which may balance out the effects of increased global stress.

In sum, age-graded differences in life contexts are one plausible factor underlying improved emotional outcomes at advanced age, and a possible peak in occupational strain in midlife. Due to different normative demands and resources, the kinds of stressful daily events encountered differ across age groups, for example, interpersonal conflicts are reduced with age. Overall, there appears to be a high density of stressful events in midlife compared to older adulthood, though midlife does not necessarily appear to be more stressful than young adulthood.

**Biological Changes in Emotion-Generative Systems**

The biological perspective on age differences in emotional well-being emerged out of a variety of findings that older adults are less physiologically reactive to emotional events in the laboratory (Tsai, Levenson, & Carstensen, 2000). This perspective suggests that physical changes with age, such as degradation of interoceptive, neural and autonomic systems, inhibit the emotion-generative process (Cacioppo, Berntson, Bechara, Tranel, & Hawkley, 2011; Mendes, 2010). As a result, negative stimuli and events would lose some of their potency to challenge emotional well-being at older ages. There is evidence of decline in interoceptive systems, lowering older adults’ awareness of bodily signals such as sensory sensations, heartbeat, and pain, which are important signals that contribute to the emotional experience.
More striking are neuroimaging findings that emotion-generative brain areas, particularly the amygdala, are less reactive to negative stimuli at higher ages (Kisley, Wood, & Burrows, 2007; Mather et al., 2004), which in turn should result in diminished physiological arousal responses to affective events. Structural degradation and functional slowing of the autonomous nervous system may further diminish the physiological arousal response (Cacioppo, et al., 2011). All of these biological changes could lead older adults to experience negative events as less impactful.

Even though biological processes are probably important, the biological perspective can at best partially explain emotional gains in well-being with age. Reduced responding of the amygdala could well indicate increased emotion regulation. Neuroimaging studies in which younger and older participants are instructed to down-regulate negative feelings while viewing emotional material show a coupling between reduced amygdala activation and increased activation in prefrontal brain regions responsible for emotional control (Samanez-Larkin & Carstensen, 2011). The amygdala also remains sensitive to stimulus characteristics other than valence, such as novelty (Wright, Wedig, Williams, Rauch, & Albert, 2006).

Furthermore, the hypothesis of diminished emotion generation in older individuals contrasts the findings reviewed above that under high emotional load, affective and stress reactivity is actually increased in older adults relative to younger adults. Charles (2010) recently proposed the model of strength and vulnerability integration, suggesting that older adults are well able to maintain affective well-being when confronted with mild to moderate stressors, or when they are able to avoid negative events, due to emotional competence acquired throughout their lives (see below). However, when the emotional event becomes intense, enduring, or unavoidable, the slowing of physiological systems may backfire. That is, when the affective event is strong enough to arouse older adults’ physiological systems, older adults appear to have difficulty down-regulating arousal.
Taken together, biological changes with age affect the emotion-generative process to some extent, but the emotional load of the event and older adults’ control resources likely determine whether biological changes improve or worsen emotional outcomes. Biological changes with age are assumed to reduce the negative impact of mild or controllable stressors, while increasing the impact of strong or unavoidable stressors.

Changes in Emotion-Regulation Motivation

A third way in which aging may influence emotional experience and reactivity is via changes in emotion regulation, including the motivation to experience or avoid certain affective states. Even if a negative affective event initially leads to a comparable emotional response (subjectively and/or physiologically), it is possible that older adults are more motivated than younger adults to defuse the negative response quickly and maintain positive affect. Several lifespan theories propose that older adults are by default more motivated than younger adults to regulate emotions in a pro-hedonic way (i.e., maximize positive and minimize negative affect), with each theory highlighting a different mechanism for this motivational shift.

In her socioemotional selectivity theory, Carstensen (2006) suggests that individuals’ future time perspective determines goals, preferences, and even cognitive processing. The theory makes a distinction between emotional goals (i.e., goals related to experiencing emotional meaning and satisfaction in the present moment) and resource acquisition goals (i.e., goals related to learning, building up a social network, or taking risks to improve future outcomes). Whenever people’s sense of remaining time is limited, either because of advanced age or when encountering situations where endings are salient, people are inclined to prioritize emotional goals. Vice versa, when sense of remaining time is expansive, as is typical at younger ages, people are inclined to prioritize resource acquisition goals that serve them well in the future. The theory has been the basis of a large variety of studies on the
above mentioned positivity effect in processing, appraising, and remembering emotional stimuli (Reed & Carstensen, 2012, provide a recent overview). The basic rationale is that older adults prioritize positive over negative information because it serves their emotional goals to optimize well-being.

Dynamic integration theory by Labouvie-Vief (2003) makes a similar prediction as Carstensen’s theory that older adults are more motivated to optimize well-being, but conceptualizes this motivational shift as a compensatory response to later-life decline in cognitive resources. The theory assumes that processing negative information and tolerating negative states, especially those high in arousal, is cognitively demanding. Consequently, cognitive limitations as typically seen with aging lead people to prefer affect optimization over affect complexity. Yet, such a motivational shift away from affect complexity does not appear to be linear; instead, empirical data shows a peak in affect complexity in midlife (the 50s). In essence, both theories predict that older adults are – as a default – more motivated to regulate emotions so as to optimize well-being, which should be driven – and likely modulated – by changes in future time perspective and cognitive abilities. This hypothesis was empirically supported in an experience-sampling study by Riediger, Schmiedek, Wagner, and Lindenberger (2009). In this study, which included adolescents all the way to the very old, age was associated with higher pro-hedonic motivation such that relatively older participants were more likely than younger participants to report that they wanted to dampen negative affect and maintain positive affect across multiple measurement occasions.

A more recent prediction that follows from the above described theories is a shift in arousal preferences. Namely, with age, people may increasingly prefer low-arousal states over high-arousal states, independent of valence. Both the model of strength and vulnerability integration (Charles, 2010) as well as dynamic integration theory (Labouvie-Vief, 2003) suggest that older adults have difficulty tolerating or regulating high arousal, due to decline in
physiological flexibility and cognitive control. In particular, shifts in arousal preferences were demonstrated for positive affect (Scheibe, et al., 2013). Participants aged 18 to 94 were asked how often they want to ideally experience two types of ideal positive affect, low arousal positive affect (relaxation, peacefulness) and high-arousal positive affect (excitement, enthusiasm). Results indicate that with increasing age, low-arousal positive affect is increasingly preferred over high-arousal positive affect. Ideal affect also better matched older adults’ experienced affect across a week of experience-sampling. Related to this, a linguistic analysis of personal blogs published on the internet revealed that younger people are more likely to associate happiness with excitement (a high-arousal positive emotion), whereas older people are more likely to associate happiness with peacefulness (a low-arousal positive emotion) (Mogilner, Kamvar, & Aaker, 2011). This age difference is thought to be driven by a redirection of attention from the future to the present, an assumption consistent with socioemotional selectivity theory (Carstensen, 2006). Within the negative affect space, arousal preferences were not yet directly assessed, but evidence indicates that high arousal negative states are perceived as more aversive at higher ages. When rating emotional pictures, older adults rate highly-arousing negative pictures as more negative than younger adults (Grühn & Scheibe, 2008; Keil & Freund, 2009).

In sum, higher age is associated with a higher motivation to avoid or defuse affective states that are negative and/or high in arousal. This shift in motivation is attributed to shifting priorities as time becomes limited, as well as decline in physiological flexibility and cognition.

Changes in Emotion-Regulation Competence

A fourth way that aging may influence emotional experience and reactivity is via improvements in emotion regulation competence (Blanchard-Fields, 2007; Senescac & Scheibe, in press). Imagining a situation where two people, young and old, are equally
motivated to defuse negative or high arousal states, the older person may be more successful in achieving their regulatory goal. Throughout life, people encounter affective events, both minor and major, and to the extent that they learn to successfully resolve these situations, they likely accumulate expertise in regulating their emotions. Emotion regulation competence refers to setting adaptive emotion regulation goals, selecting appropriate strategies of emotion regulation, and implementing strategies effectively and efficiently.

Strategy choice. When considering Gross’ (1998) model of emotion regulation, a general hypothesis is that older adults use antecedent-focused emotion regulation strategies more often, and response-focused strategies less often than younger adults (Charles & Carstensen, 2010). Antecedent-focused strategies are generally more effective and less cognitively demanding than response-focused strategies, because the emotion-generative process is interrupted before the full emotional response has developed (Gross, 1998). Cross-sectional evidence attests an age-related increase in the self-reported use of reappraisal, coupled with an age-related decrease in use of suppression (John & Gross, 2004). Similarly, in work contexts that involve emotional labor, older employees report using deep acting more often, and surface acting less often than younger employees (Cheung & Tang, 2010; Dahling & Perez, 2010).

Zooming in on antecedent-focused strategies, a variety of findings suggest that older adults prefer less cognitively demanding strategies over more demanding strategies. The motivational theory of lifespan development (Heckhausen, et al., 2010) holds that people adjust coping strategies to their changing ability to control their environment. In young age, primary control strategies that change external circumstances are preferred. In contrast, older adults shift to using secondary control strategies that change the self in order to adjust to environmental demands; these are often less cognitively demanding than primary control strategies. Supporting this view, Folkman et al. (1987) found older adults to employ less
active, interpersonal, and problem-focused coping behaviors, but more passive, intrapersonal, and emotion-focused strategies than younger adults. Research on everyday problem solving shows when confronted with emotionally laden problems, which are mostly interpersonal in nature, older adults include emotion-focused coping as part of their problem solving more than younger adults (Blanchard-Fields, 2007). Experts rate older adults’ strategy choices in such types of situations as more effective (Blanchard-Fields, Mienaltowski, & Seay, 2007). One study in the work context found that when dealing specifically with interpersonal conflicts at work, older employees tend to use more often non-confrontational responses (yielding, delay responding), while they were equally likely to make an effort to solve the problem constructively, as assessed via peer reports (Davis, Kraus, & Capobianco, 2009). Importantly, when dealing with instrumental problems (e.g., resolving a computer failure), both young and older adults appear to use problem-focused coping (Blanchard-Fields, 2007). This suggests that older adults tailor their coping strategies to contexts (interpersonal vs. instrumental) more so than younger adults, and tend to choose less cognitively demanding regulatory strategies especially during emotionally laden everyday problems.

*Strategy effectiveness.* Due to their increased life experience, older adults may be more effective in implementing emotion regulation strategies. In self-report studies, older adults report higher general control of their emotions than younger adults, which statistically mediates age-related improvements in affective well-being (Kessler & Staudinger, 2009; Lawton, et al., 1992). In terms of emotional labor, older employees are more likely to report that their felt emotions naturally align with organizational display rules (Dahling & Perez, 2010), a sign of successful enactment of either antecedent-focused emotion regulation strategies and/or more implicit forms of emotion regulation (Gyurak, Gross, & Etkin, 2011). Older adults were further found to score higher than younger adults on the emotion
management subtest of the MSCEIT, a widely used multiple-choice test of emotional intelligence (Kafetsios, 2004).

Experience-sampling evidence suggests that older adults are more effective in avoiding arguments in interpersonal conflict situations, a form of situation modification, and their affective benefit from avoiding arguments is higher than that of younger adults (Charles, Piazza, Luong, & Almeida, 2009). Several laboratory studies have instructed participants to use particular emotion regulation strategies to down-regulate negative emotion responses to pictures, film clips, or personal problems. In these studies, older adults showed superior ability to implement some regulatory strategies, though not others. Namely, positive refocusing (a kind of attentional deployment) and positive reappraisal (a form of cognitive change) are more effectively implemented by older adults than younger adults, as indicated by subjective and physiological outcomes (Phillips, Henry, Hosie, & Milne, 2008; Shiota & Levenson, 2009). In contrast, older adults are no more effective than younger adults to implement expressive suppression, and are even less effective than young adults in implementing detached reappraisal (thinking about the emotional situation in an objective way; Shiota & Levenson, 2009). Likely these kinds of strategies are less often utilized by older adults, leaving them less well practiced.

_Cognitive costs of strategy implementation._ Implementing any emotion regulation strategy requires some level of cognitive control, but the amount of cognitive control needed to successfully enact a given strategy may decrease when it becomes automatized (Chein & Schneider, 2005). If people routinely and successfully use particular emotion regulation strategies in particular contexts over a long period of time, these strategies should become activated more automatically and therefore are less effortful (Senesac & Scheibe, in press). Such automatization processes may occur with aging. As a result, emotion regulation can
become more efficient with age, so that fewer cognitive resources are needed to reach the same regulatory outcome.

Supporting this idea, Scheibe and Blanchard-Fields (2009) found that when younger adults were instructed to defuse negative affect after a disgust induction, their performance on a concurrent working memory task was compromised, but no performance drop occurred in older adults. Emery and Hess (2011) found older adults, relative to young adults, had lower memory costs when instructed to suppress emotional expressions while viewing negative pictures. This finding could indicate that older adults had to devote fewer attentional resources to maintaining a neutral expression, so that more attention could be devoted to encoding the emotional material. A further study showed differential cognitive effort was needed to enact emotional experience regulation versus emotional expression regulation in younger and older adults (Senesac, 2010). Older adults required more resources (indicated by performance drops in a Stroop task performed after the emotion regulation task) to regulate (i.e., suppress) emotion expressions than emotion experience, while the opposite applies to young adults. This may partly explain age differences in strategy choices mentioned above.

Taken together, emotional competence in many ways appears to increase with age. There is evidence that older adults (1) choose more effective and/or less cognitively demanding emotion regulations strategies, (2) are more effective in implementing certain (though not all) emotion regulation strategies, and (3) require less cognitive resource to implement specific strategies.

**TOWARDS AN INTEGRATIVE MODEL: HOW AGING AFFECTS THE OCCUPATIONAL STRESS AND WELL-BEING PROCESS**

In the previous sections, we reviewed theories and findings on occupational stress and well-being as well as emotional aging, two bodies of literatures that have been disconnected to date. In the current section, we will draw together these two literatures to formulate an
integrated model of how aging – via associations with changing life context, emotion generation, and emotion regulation – may influence the occupational stress and well-being process (see Figure 1). The model includes core elements and processes of the transactional stress model (Lazarus & Folkman, 1984) and affective events theory (Weiss & Cropanzano, 1996) and outlines how recent advancements in the study of emotion regulation in the lifespan literature may inform our understanding of work-related stress and well-being. We will further identify moderating factors that likely determine when age-related differences or change will be positive or negative. We describe our model in terms of a set of propositions.

Specifying the Nature of the Variable “Age”

Before discussing the role of age in the occupational stress and well-being process, it is important to have a closer look at the variable “age.” Throughout the chapter we have mentioned normative age-related changes, such as reductions of future time perspective, cognitive decline, physiological slowing, motivational shifts, and life context changes, which have been used to explain age-related changes in emotional functioning. This list highlights one important theme, namely that chronological age by itself is an “empty variable” that is only given meaning through its association with normative changes in different domains of functioning. Even though normative changes occur, there are large interindividual differences in age-associated change (Nesselroade, 1991). People “age” at very different rates within and across domains, and at any point in the lifespan, development is plastic and modifiable (Baltes, Lindenberger, & Staudinger, 2006). Indeed, while chronological age is a reliable predictor of what people are capable to do, strive for, and are willing to do in childhood and at very advanced ages, this is much less true for the working lifespan. Consistent with this notion, several recent meta-analyses on age differences in the work context find only minimal or no age differences (Kooij, De Lange, Jansen, Kanfer, & Dikkers, 2011; Ng & Feldman, 2010; Rauschenbach, et al., in press).
Consequently, we suggest that employee strain and well-being will be the result of multiple, interacting processes related to chronological age. Researchers should pay attention to variables beyond chronological age and consider their additive and interactive effects on the stress and well-being process. Kooij, De Lange, Jansen, and Dikkers (2008) have summarized five different conceptualizations of age. Besides (1) chronological age (years since birth), these include (2) functional age (e.g., health status, cognitive abilities), (3) psychosocial or subjective age (e.g., how old individuals feel, look, and behave), (4) organizational age (years spent in an organization, i.e., tenure), and (5) life stage (e.g., family status). These different factors may interact, add up, or sometimes even cancel each other out in their impact on the occupational stress and well-being process. Moderation effects need attention. For example, age differences in pro-hedonic emotion regulation motivation may only be found at low levels of future time perspective or at low levels of cognitive functioning. Age-related improvements in emotion regulation competence may be enhanced to the extent that individuals have experienced the to-be-regulated event in the past and have learned to successfully regulate it. This in turn, could be indicated by tenure. Hence, occupational researchers interested in lifespan effects are well advised to measure multiple, if not all five of the above mentioned “meanings of age”, and assess their additive and interactive effects on occupational strain and well-being.

Aging and the Occurrence of Affective Work Events

Consistent with the notion of age-related changes in life contexts reviewed above, employees’ age may influence what types of affective work events they encounter and how frequently they encounter them. This is because people’s external circumstances change as they age (Farr & Ringseis, 2002). Younger employees may face higher levels of job insecurity than other age groups. Middle-aged employees might experience more conflict between their work and home lives (e.g., caring for children and aging parents) than young
and older employees (Zacher & Winter, 2011). While some stressors may become less frequent with age, others may occur more often, such as age discrimination. Older employees may be exposed to more negative interactions at the workplace than younger employees because many people still have negative stereotypes about older employees that influence how they treat these employees (Posthuma & Campion, 2009).

Additionally, multiple changes occur in people’s health, cognitive abilities, personality, motives, and self-concept as they age (Kanfer & Ackerman, 2004; Warr, 2001). These changes may influence people’s interaction with their environment and, in turn, the experience of affective work events. For example, due to their increased generativity motive, older adults may seek out mentoring experiences more often than young adults. This in turn, may give rise to particular hassles (and also uplifts) associated with mentoring relationships. Due to their longer tenure and job experience, older adults may be given more challenging assignments, or less time to complete work tasks, which could make work overload and time pressure more likely. For the same reasons, older adults may be given more job-related autonomy, which could help them avoid certain stressors. For instance, White and Spector (1987) found that perceived job congruence partially mediated the positive association between age and job satisfaction. These considerations underscore the need for a fine-grained look at types and frequencies of affective work events that different age groups encounter. For instance, a number of studies have suggested a U-shaped relationship between age and occupational well-being (Clark, Oswald, & Warr, 1996; Rauschenbach, et al., in press); however, hardly any research has examined the life context changes that may explain this relationship. Lifespan researchers have suggested multiple role commitments and increased responsibility as potential mediators (Heckhausen, et al., 2010).
Proposition 1: Changes in employees’ life contexts mediate the relationships between age and age-related factors on the one hand and the occurrence of affective work events on the other.

Proposition 1a: Middle-aged workers experience higher levels of strain and lower levels of occupational well-being due to increased work-life conflict and work responsibilities.

Aging, Emotion Generation, and Emotional Response

As affective work events occur, age and age-related changes in physical and cognitive functioning, personality, and motivation may influence how the emotion-generative cycle unfolds and, in turn, people’s level of strain and well-being. By emotion generation, we mean the (unregulated) attention-appraisal-response sequence specified in basic models of emotion (Gross & Thompson, 2007; Lazarus & Folkman, 1984). The biological perspective on emotional aging suggests that in many contexts of everyday life, biological changes of interoceptive systems, emotion-sensitive brain areas, and the autonomic system lead older adults to appraise and experience negative events as less impactful (Cacioppo, et al., 2011). Above, we have also reviewed evidence that older adults appraise stressful events as less negatively and attend more to positive than negative cues in their environment. The existing evidence suggests this will mainly affect social stressors, such as interpersonal conflicts.

Yet, there can also be situations where older adults appraise affective work events, especially physical stressors (noise, heat) and psychological stressors (workload, time pressure) as more severe than younger adults. For example, Kanfer and Ackerman (2004) suggested that older employees might experience jobs that require high levels of rapid information processing as more stressful than younger employees due to age-related declines in fluid intelligence. In addition, these authors argued that tasks requiring high levels of effort should have lower utility for older employees due to their career stage and preference for emotionally meaningful work goals. The model of strength and vulnerability integration
(Charles, 2010) further suggests that older adults will have difficulties dealing with intense, chronic, or unavoidable stressors, because their physiological system once activated takes longer to recover. According to the “overpowering hypothesis” put forward by Wrzus and colleagues (2012), older adults’ self-regulatory resources are overpowered in highly resource-demanding situations. Consequently, researchers should pay attention to the nature and emotion-regulatory load (intensity, duration, chronicity, and complexity) of affective events that employees encounter, to attentional processes, and to primary appraisals employees make when faced with stressful work events.

Proposition 2: The effect of age on the emotional response to affective work events is mediated by emotion generation (via attention and appraisal processes), which in turn is moderated by the nature of events.

Proposition 2a: With increasing age, individuals are less strongly affected by interpersonal stressors and more strongly affected by non-interpersonal stressors.

Proposition 2b: When stressful events have a high emotion-regulatory load (indicated by high intensity, duration, chronicity or complexity) older adults are equally or more strongly affected than younger adults, independent of event type.

Aging, Emotion Regulation, and Emotional Response

It is further likely that age moderates the event-response relationship by impacting emotion regulation and coping. Above, we have reviewed the current state of knowledge on age-related differences in emotion regulation motivation and competence (indexed by strategy choice, strategy implementation, and strategy efficiency). To the extent that older adults perceive their future as more limited and are “cognitively and physically aged”, they may be more motivated to defuse negative and high-arousal states quickly. To the extent that older adults have acquired life experience dealing with potentially distressing situations, they
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may make better choices in emotion regulation strategies and/or enact strategies more effectively and efficiently.

At the same time, the work environment will determine the range of regulatory options that older employees have at their disposal. For example, service jobs rarely provide the option to use situation selection in interaction with customers (e.g., avoiding talking to an unpleasant customer; Grandey, 2000). This may be the reason why older employees value work autonomy, or job control highly (Kooij, et al., 2011); it gives them the opportunity to use many antecedent-focused emotion regulation strategies that they prefer and can implement effectively. In a recent study, Weigl, Müller, Hornung, Zacher, and Angerer (2012) investigated age differences in work ability in a sample of nurses as a function of job control and the use of self-regulatory strategies. Results showed that the negative relationship between age and work ability was weakest for employees with high job control and high use of self-regulatory strategies. This points to important interactive effects of people’s self-regulatory strategies and characteristics of the work environment in shaping occupational outcomes.

Proposition 3: The effect of age on the emotional response is mediated by emotion regulation.

Proposition 3a: Older adults are more motivated than younger adults to avoid or down-regulate negative and/or high-arousal affect associated with affective work events.

Proposition 3b: Older adults are more effective and efficient in avoiding or down-regulating negative and/or high-arousal affect resulting from affective work events, especially when the occupational context supports the free choice of regulatory strategies.

FUTURE RESEARCH DIRECTIONS

Future research needs to employ suitable research designs to test the propositions outlined in our model. It is notable that many of the reviewed studies on emotional aging,
especially those conducted in the laboratory, have employed so-called “extreme age group designs”. Thus, most of the laboratory studies have compared discrete groups of young adults (typically in their 20s) and older adults (typically in their 60s to 80s), with no middle-aged group in between. Given that older employees are technically middle-aged, and given that age-related differences may not follow linear trends, the conclusions that can be gained for middle-aged and older employees are restricted, though we believe a general pattern of findings emerges from that literature that allows making predictions about aging and work stress. That being said, more research on curvilinear relationships between age, emotion regulation, and the components of the stress process is needed (Clark, et al., 1996). In Ng and Feldman’s (2010) meta-analysis on age and different job attitudes, the relationship between age and emotional exhaustion was one of the few relationships that were curvilinear in nature. However, the studies included in the meta-analysis varied in the extent to which samples with employees from different ages were included. Thus, future research with sample spanning the whole working life span is needed.

Another limitation of most previous research on age and stress is the use of cross-sectional research designs. These designs are useful to address the question whether people of different ages differ with regard to different aspects of the stress process; however, they do not answer the question whether the same people, over time, encounter different stressors, appraise affective work events differently, and change in their strain and well-being as they age. Longitudinal cohort-sequential studies on aging are needed to disentangle aging and generational effects; unfortunately, such studies are very time consuming and cost-intensive. Additionally, due to selectivity and the “healthy worker effect”, some of the mechanisms underlying age-related change in emotional functioning may not apply to work settings. For example, people with low cognitive status or poor health, which are hypothesized to drive
shifts in emotion regulation motivation, are likely to retire early. Consequently, the range of
cognitive or health variation may be diminished, reducing predictive power.

Another avenue for future research may be to integrate factors in the external work
environment in our model as resources and constraints. So far, the work environment is only
represented in the form of environmental demands or affective work events. We only hinted
at the potentially important role of job characteristics such as job autonomy, and how they
might interact with age in influencing the stress process. Two recent studies illustrate the
importance of examining interactions between employee age and work characteristics. Shultz,
Wang, Crimmins, and Fisher (2010) demonstrated that perceived job demands interact
differently with job control in different age groups in predicting occupational well-being.
Among younger employees, only the availability of sufficient time to complete tasks buffered
the effects of problem solving demands on strain. For older employees, sufficient time to
complete tasks and autonomy buffered the effect of deadlines on strain, and schedule
flexibility buffered the effect of problem solving demands on strain. More recently, Besen,
Matz-Costa, James, and Pitt-Catsouphes (2012) showed that perceived job and personal
control had different effects in the context of high job demands among younger and older
employees. Namely, job control buffered the negative relationship between job demands and
mental health among younger employees with high personal control. Among older
employees, only personal control buffered the link between job demands and mental health.
Thus, not only individual appraisals and skills, but also work characteristics may impact how
employees of different ages react to affective events.

In conclusion, we aimed in this chapter to integrate the literatures on aging, emotion
regulation, and occupational stress and well-being. Our integrative conceptual model is based
on a review of key theories and empirical findings in each of these areas. Future research that
tests the propositions of our model is now needed. Such research will contribute to a better
understanding of emotion regulation across the working life span, and to derive practical
implications for organizations interested in managing stress and maximizing well-being in the
workplace among different age groups.
Figure 1. Schematic overview how aging may affect occupational stress and well-being processes.
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