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Empirical Article

Employees' Age Moderates Relationships of Emotional Suppression With Health and Well-Being

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ABSTRACT

Emotional suppression has been found to be negatively associated with individuals' health and well-being. However, most studies on emotional suppression were conducted among younger adults in laboratory settings. Considering the increased aging of the current workforce, it is important to examine the effect of emotional suppression on older workers' health and well-being. The present study examined age differences in relationships of emotional suppression with physical strain and job-related affective well-being. Physical strain and affective well-being were assessed one month following the assessment of emotion regulation in a group of 340 Chinese workers (Sample 1) and in another group of 280 Chinese workers (Sample 2). Results from both samples found that the habitual use of emotional suppression was negatively related to physical strain among older workers but not among younger workers. Results from Sample 1, but not Sample 2, revealed that the habitual use of emotional suppression was positively related to affective well-being among older workers but not among younger workers. Exploratory analyses found only 1 out of the 4 interaction effects between age and cognitive reappraisal such that cognitive reappraisal was positively related to affective well-being among older workers but not among younger workers. Findings contribute to the aging and emotion regulation literature by discovering an age-related increase in the effectiveness of emotional suppression in relation to employees' physical strain and affective well-being. Habitual use of emotional suppression may become more effective for older workers, and thus it is a potential strategy for them to maintain health and well-being.

Emotion regulation has been defined as "the process by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998b, p. 275). Emotional suppression, as a major strategy to regulate emotions, refers to intentional inhibition of one's emotional expressive behavior (Gross & Levenson, 1993). It has been found to be negatively related to a number of important psychosocial outcomes, such as interpersonal functioning, psychological well-being, and physical health (e.g., Gross & John, 2003; Gross & Thompson, 2007; John & Gross, 2004). However, most of the past research on emotional suppression has been conducted in laboratories among younger adults. Given the increasing number of older workers, recent theoretical and empirical developments in industrial and organizational psychology have called for studies to examine factors that may influence older workers' health and well-being (e.g., Jex, Wang, & Zarubin, 2007). Therefore, the present research aimed to examine age differences in emotional suppression in relation to employees' health and well-being.

As people grow older, they may experience age-related declines in cognitive capacities (Salthouse, 2012). Because emotional suppression is a response-focused strategy, using it usually requires an investment of cognitive effort to monitor one's emotional feelings and expressions (Gross, 1998b). As such, older adults may find it difficult to meet those cognitive demands required by emotional suppression, and thus they may use it less frequently. However, the socioemotional selectivity theory (SST; Carstensen, Isaacowitz, & Charles, 1999; Scheibe & Carstensen, 2010) and the literature on everyday problem-solving suggest that older adults may frequently use emotional suppression because they are motivated to regulate their negative emotions. Past research (e.g., Blanchard-Fields, 2007) supported this idea and found that older adults were more likely than younger adults to use avoidance, a similar passive emotion regulation strategy as emotional suppression, to solve interpersonal relation problems. To explore the opposite arguments above, the present study examined age differences in the habitual use of emotional suppression in younger and older workers.

Interestingly, prior research has suggested that age-related improvement in emotion regulation may explain *why* older workers can maintain mental health and self-reported physical health (Ng & Feldman, 2013). Yeung and Fung's (2012) experience sampling study of 87 Chinese Hong Kong insurance workers found that greater momentary use of emotional suppression at work was associated with lower

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intensity of negative emotions and higher levels of sales productivity among older worker with an average age of 48.70 years old, whereas such relations were not found among younger workers with an average age of 29.47 years old. Short-term use of emotional suppression may effectively promote job performance and decrease the intensity of negative emotions, but it is also possible that its long-term use may entail the accumulation of negative effects on employee health and well-being because the stressors/events that invoked the use of emotional suppression might still be unresolved. Thus, the current study also aimed to examine whether the habitual use of emotional suppression would have the same benefits on older workers' physical strain and affective well-being. Furthermore, it is unclear if the benefits of emotional suppression found in this small group of 87 Chinese Hong Kong insurance workers could be generalized to larger and more diverse samples of older adults. Thus, the present study planned to investigate the emotional suppression-health and well-being relationships in two larger and more diverse samples of workers.

Emotional Suppression, Physical Strain, and Affective Well-Being

The present research focused on physical strain and job-related affective well-being. Physical strain typically consists of physical reactions to work stressors (e.g., Adams, DeArmond, Jex, & Webster, 2013). Affective-well-being is defined as the frequency of emotional experiences at work, with higher levels of well-being associated with more frequent positive and less frequent negative emotions (Katwyk, Fox, Spector, & Kelloway, 2000). Empirical research has demonstrated that physical health problems are associated with decreased work efficiency and increased turnover intention (e.g., Kemery, Mossholder, & Bedeian, 1987), whereas employees' affective well-being at work is positively related to a variety of performance outcomes (e.g., Brief & Weiss, 2002). Therefore, it is clearly important to look at the effect of emotional suppression on employees' physical strain and affective well-being.

As to physical strain, past research has found that inhibiting or concealing one's experienced emotions has physiological cost (e.g., Gross & John, 2003; Gross & Thompson, 2007). For instance, emotional suppression has been found to increase cardiovascular activation (e.g., Ben-Naim, Hirschberger, Ein-Dor, & Mikulincer, 2013; Butler et al., 2003) and sympathetic activation (Demaree et al., 2006; Gross, 1998a) in laboratory studies of undergraduate students. These undesirable physiological costs could be manifested in forms of physical strain, such as back pain, dizziness, etc. Furthermore, suppressing negative emotions has been found to relate to immunological changes in a group of medical school students (Penedo et al., 2006; Petrie, Booth, & Pennebaker, 1998). A recent meta-analytic study has also demonstrated that emotional suppression generally increases physiological responses (Webb, Miles, & Sheeran, 2012). As such, emotional suppression may interfere with stress-related activation of hypothalamic–pituitary–adrenocortical (HPA) processes and immune functions, leading to physical strain and impaired health (Schlatter & Cameron, 2010).

With regard to affective well-being, past laboratory research has generally found that although emotional suppression may temporarily decrease negative emotions, it cannot completely eliminate those unpleasant feelings, and the inner experiential reactions may remain unresolved (Gross & Levenson, 1997; Kalokerinos, Greenaway, & Denson, 2015). Some studies have even found emotional suppression may decrease positive emotions (Dan-Glauser & Gross, 2011), though other research has found no such effect on positive emotions (e.g., Kalokerinos et al., 2015; Korb, Grandjean, Samson, Delplanque, & Scherer, 2012). Use of emotional suppression in laboratory settings was also found to decrease positive but not negative emotion experience among two samples of undergraduates (Gross & Levenson, 1993). Meta-analytic findings have also revealed that emotional suppression does not effectively reduce experienced negative emotions (Webb et al., 2012).

Therefore, it seems plausible that emotional suppression is positively related to physical strain and negatively related to job-related affective well-being. However, most prior research findings were conducted in laboratories with younger adults. Next, we briefly reviewed past research findings on the habitual use emotional suppression.

Habitual Use of Emotional Suppression in Work Context

Though prior research has focused on the short-term, acute effect of emotional suppression in laboratory settings, researchers have also realized that people use emotional suppression on a regular basis as a preferred form of emotion regulation (Gross & John, 2002). Such habitual use of emotional suppression has implications for daily life (e.g., marital conflicts). For instance, the habitual use of emotional suppression was found to be associated with less frequent experiences of positive emotions, more frequent experiences of negative emotions, worse interpersonal functioning, and poorer well-being among undergraduate students (Gross & John, 2003). Undergraduate students' habitual use of emotional suppression was also found to be positively related to depressed mood and negatively related to life satisfaction (Haga, Kraft, & Corby, 2009). It was also found to be negatively related to marital quality in a group of newlywed couples (Velotti et al., 2016).

In contrast, research has found that the habitual use of emotional suppression was not significantly related to either positive or negative emotions at work or to job satisfaction in a group of 140 middle-aged employees in a hospice and in another group of 212 middle-aged employees in hotel and resort facilities (Liu, Prati, Perrewe, & Brymer, 2010). It is likely that emotional suppression may help employees meet neutral display demands at work, which requires inhibition of both positive and negative emotional expression (Trougakos, Jackson, & Beal, 2011). Nonetheless, such findings are inconsistent with research findings on surface acting, which is conceptually similar to emotional suppression (Grandey, 2000; Gross, 2013). It generally refers to changing outward emotional displays while leaving inner feelings unchanged (Ashforth & Humphrey, 1993). Past research generally suggests that surface acting as part of the job has chronic negative health consequences (e.g., Hülsheger & Schewe, 2011).

However, the same effects of surface acting may not generalize directly to the habitual use of emotional suppression. Emotional suppression entails suppressing either positive or negative emotions, whereas surface acting entails suppressing negative and enhancing positive emotions (Grandey, 2000, 2015; we thank for an anonymous reviewer for suggestion). Most research on surface acting has focused on customer service interactions where there are strong display rules (Grandey, 2000). However, individuals with more habitual use of emotional suppression may use this strategy consistently in many aspects of their daily life, and this self-driven use of emotional suppression may not necessarily lead to negative outcomes (Deci & Ryan, 2000). Similarly, it has been suggested that the consistent use of surface acting

was less taxing than the more variable use of surface acting (Scott, Barnes, & Wagner, 2012). Employees' habitual use of emotional suppression was even found to buffer the negative impact of organizational changes on employee strain (Schraub, Stegmaier, & Sonntag, 2011). Team members' habitual use of emotional suppression was also found to mitigate the adverse effects of negative team affective tone on team performance (Cole, Walter, & Bruch, 2008). These results suggest that the habitual use of emotional suppression may have potential benefits in the work context (Lok & Bishop, 1999).

Age Differences in the Habitual Use of Emotional Suppression

With regard to age differences, there are some evidences showing a positive relationship between age and habitual use of emotional suppression (e.g., Brummer, Stopa, & Bucks, 2014; Diehl, Coyle, & Labouvie-Vief, 1996). However, some research has also found that age is negatively related to use of maladaptive strategies (e.g., emotional suppression; Scheibe, Spieler, & Kuba, 2016). More specifically, prior research has reported a negative relationship (e.g., English & John, 2013; John & Gross, 2004) and a nonsignificant relationship (e.g., Hess, Beale, & Miles, 2010) between age and use of emotional suppression. Therefore, current findings concerning the relationships between age and habitual use of emotional suppression are still mixed (for a systematic review, see Doerwald, Scheibe, Zacher, & Van Yperen, 2016).

The present research hypothesized a positive relationship between age and habitual use of emotional suppression mainly due to the following considerations. First, the SST suggests that with age people would experience a shift in motivation from knowledge-related goals (e.g., learning new knowledge) to emotional goals (e.g., maintaining affective well-being) due to their limited future time perspectives (Carstensen et al., 1999; Scheibe & Carstensen, 2010). Older adults could be motivated to regulate their negative emotions due to the prioritized emotional goals, which may lead to frequent use of emotional suppression.

Second, past research has also found that older adults tend to have greater emotional control of negative emotions (Gross et al., 1997) and prefer strategies that mitigate negative emotional arousal (Lawton, Kleban, Rajagopal, & Dean, 1992). The literature on everyday problem-solving also suggests that older adults tend to use more passive emotion-regulation strategies than middle-aged adults when regulating emotions during interpersonal problem-solving (Blanchard-Fields, Stein, & Watson, 2004). They also use more avoidant-denial strategies (e.g., avoidance, suppression, or withdrawal) to solve interpersonal problems than younger adults do (Blanchard-Fields, Mienaltowski, & Seay, 2007). Emotional suppression, which works similarly to these passive, indirect strategies, might be used more frequently by older adults. Therefore, because older workers have stronger motivation to regulate negative emotions and prefer passive and avoidant strategies, they may use emotional suppression more frequently than younger workers.

Hypothesis 1: Employee age would be positively related to the habitual use of emotional suppression.

Age Differences in the Effectiveness of Emotional Suppression

The second question was whether the use of emotional suppression would be more effective (in terms of physical strain and affective well-being) for older workers than for younger workers. There are several reasons to expect that the effectiveness of using emotional suppression would be influenced by employee age. First, with increasing age, people tend to prefer emotional goals and thus have greater motivation than younger adults to avoid negative emotions (Blanchard-Fields, 2007). Second, people may learn from the consequences of emotional suppression. They could learn life lessons in coping with emotionally provocative events (Blanchard-Fields et al., 2004) and use avoidant-denial strategies (e.g., emotional suppression) more effectively (Blanchard-Fields et al., 2007). Furthermore, older adults could also adapt to age-related changes (e.g., strengthened emotional goals) by selectively using emotional suppression (e.g., avoidant–denial strategies; see in Blanchard-Fields et al., 2007) and optimizing its effectiveness by practices in daily life (M. M. Baltes & Carstensen, 2003; Urry & Gross, 2010). Indeed, past research has suggested that older adults tend to be better at controlling their emotions (Gross et al., 1997).

It is likely that age-related improvement in the effectiveness of using emotional suppression can benefit older workers in terms of less frequent physical strain and higher levels of affective well-being. Unlike suppressing negative emotions, outwardly expressing negative emotions can amplify the adverse effect of negative emotions (Brown, Westbrook, & Challagalla, 2005) and undermine recovery from stress (Sonnentag & Fritz, 2007). On the other hand, effective emotional suppression is essential for social harmony (Elias, 1978) and can promote important social functions such as accommodating relationship goals and following social norms (Butler & Gross, 2004). Habitual use of emotional suppression may thus bring employees organizational and social benefits at work (Liu et al., 2010), such as less interpersonal conflicts (Birditt, Fingerman, & Almeida, 2005) and better job performance (Yeung & Fung, 2012). Such desirable outcomes may benefit older workers' health and affective well-being. Direct supportive evidences can be found in a recent experience sampling study showing that older workers' emotional suppression at work was associated with lower intensity of negative emotions and higher levels of sales productivity (Yeung & Fung, 2012). Effective emotional suppression may also contribute to potential age-related advantage such that older workers experience less emotional dissonance than younger workers when facing neutral display demands at work (Scheibe, Stamov-Roßnagel, & Zacher, 2015). Some laboratory studies also reported that suppressing or down-regulating emotions was less cognitively costly for older adults than for younger adults (Emery & Hess, 2011; Scheibe & Blanchard-Fields, 2009); though other experimental studies did not find it to be the case (Lohani & Isaacowitz, 2014; Phillips, Henry, Hosie, & Milne, 2008; Shiota & Levenson, 2009).

In contrast, younger workers may not experience the benefits of the habitual use of emotional suppression, as found in Yeung and Fung's (2012) experience sampling study. According to the SST, emotional goals would be less prioritized by younger adults than by older adults (Carstensen et al., 1999). As such, younger workers might be less motivated to use emotional suppression. Relative to older workers, they may have less experience in using emotional suppression in daily life. Their habitual use of emotional suppression may not necessarily bring them benefits in health and well-being. However, emotional suppression may bring organizational and social benefits at work in the work context (Liu et al., 2010), which could offset the undesirable effects of emotional suppression among younger workers. Thus, younger workers' habitual use of emotional suppression may not necessarily lead

to the harmful effects found in college students (e.g., John & Gross, 2003).

Therefore, based on theoretical reasoning (Blanchard-Fields, 2007; Carstensen et al., 1999) and empirical findings (Liu et al., 2010; Yeung & Fung, 2012), the present study further tested the following hypotheses:

Hypothesis 2a: Employee age moderates the relationship between emotional suppression and physical strain such that emotional suppression–physical strain relationship would be negative among older workers but nonsignificant among younger workers.

Hypothesis 2b: Employee age moderates the relationship between emotional suppression and affective well-being such that emotional suppression-affective well-being relationship would be positive among older workers but nonsignificant among younger workers.

Are the Moderation Effects Unique to Emotional Suppression?

Though the present research mainly focused on emotional suppression, one might be curious whether the same age-related changes in emotional suppression also apply to other emotion regulation strategies. According to the process model of emotion regulation, there are two major forms of emotion regulation strategies: response-focused and antecedent-focused emotion regulation (Gross, 1998a, 1998b). Response-focused emotion regulation usually occurs after emotional responses fully unfolded, whereas antecedent-focused emotion regulation usually occurs before all emotional responses unfolded (earlier in the process). Although various emotion-regulation strategies can be identified, emotional suppression and cognitive reappraisal, each as a representative form of response-focused and antecedent-focused emotion regulation, are the two strategies that have been primarily studied (e.g., Gross & Thompson, 2007). As such, the current research moved beyond our main focus on emotional suppression and explored the age moderation effects on cognitive reappraisal.

Cognitive reappraisal refers to changing emotional impact of a potentially emotion-eliciting situation via cognitive appraisal (Gross, 1998a; Gross & John, 2003). We cautiously examined the age moderation effects on cognitive reappraisal in an exploratory manner in the current study for two reasons. First, in nonlaboratory settings, cognitive reappraisal does not necessarily require fewer cognitive resources than does emotional suppression, but it could be more mentally demanding in situations involving complex interpersonal dynamics (Liu, Prati, Perrewé, & Ferris, 2008). Supporting this, previous research has found that cognitive reappraisal is one of the lesser-used emotion regulation strategies in daily life (Brans, Koval, Verduyn, Lim, & Kuppens, 2013). In addition, cognitive reappraisal has been rated as more difficult than emotional suppression in two experiments with over 1,300 participants (Kalokerinos et al., 2015). These findings suggest that people may not be familiar and well-practiced with cognitive reappraisal in daily life, and thus the use of cognitive reappraisal may not necessarily be more effective as people grow older. Second, it is important to note that cognitive reappraisal may take a variety of forms, and the specific type of cognitive reappraisal may determine whether there would be age differences in its effectiveness (Urry & Gross, 2010). For example, the use of positive reappraisal is more successful for older adults, whereas the use of detached reappraisal is more successful for younger adults (Shiota & Levenson, 2009). Because we did not measure specific forms of cognitive reappraisal, it is difficult to hypothesize the specific direction of age differences in the effectiveness of cognitive reappraisal with the current data. Because of these two considerations, the present research explored age differences in the effectiveness of cognitive reappraisal as an exploratory research question.

Exploratory research question: Does the same moderation effect of employee age apply to cognitive reappraisal?

Preview of the Methods

Two independent samples of employees were recruited to test the hypotheses. The first sample included bank employees from a midsize bank in China. This sample was suitable for the purposes of this study since bank employees typically work in an interpersonally interdependent context (e.g., customer service, interacting with coworkers). The second sample was drawn from a variety of industries and organizations in China on a convenience basis. Most participants in this second sample work in jobs that require relatively high levels of interpersonal interactions. This second sample was used to test the generalizability of the findings from the first sample.

METHOD

Participants and Procedure

Sample 1

Employees from a midsize bank in Mainland China were invited to participate in the study. Participants were sent hard-copy surveys, which consisted of several measures as a part of a larger study. All participants were informed that participation was voluntary and they were free to withdraw from the study without any penalty. Because of the practical issues concerning survey length and common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), demographic information and emotional suppression were measured at Time1. Physical strain and job-related affective well-being were measured 1 month later (Time2).

Of the 407 employees invited, 365 employees completed Time 1 surveys (89.7%). Among these 365 participants, a total of 340 matched and usable surveys were identified at Time 2, resulting in a retention rate of 93.15%. Compared to prior research, such a high response rate was not uncommon in studies sampling Chinese employees (e.g., Nixon, Yang, Spector, & Zhang, 2011), particularly when management supported the research. We also took many steps (e.g., sealed envelopes; using identification numbers) to protect participants' identity. Monetary rewards were also provided (approximately $1 gift card). The final group of participants consisted of 170 males and 170 females with an average age of 40.61 (standard deviation [*SD*] = 7.79; range from 22 to 55 years old), with the majority of them being married (85.3%). Most of them worked in supervisory positions (75.6%). The average tenure (in years) at current position and work hours per week were 7.44 (*SD* = 7.96) and 45.18 (*SD* = 6.44), respectively.

Sample 2

Employees from a variety of industries and organizations (e.g., insurance company, middle school, bank, etc.) in several midsize cities of Mainland China were recruited for Sample 2. Like Sample 1, the same recruiting procedure was followed (in Sample 2, we also measured baseline physical strain and affective well-being at Time 1. However, similar results were found when controlling for the baseline levels of outcome variables. More details can be found in the results part). Based on the general information of the participating organizations, most participants in this study worked in jobs that required relatively high levels of interpersonal interactions (e.g., customer service).

Three hundred sixty employees participated in Time 1 survey and 305 usable surveys were identified (84.72%). In Time 2, a total of 280 matched and usable surveys were identified, resulting in a retention rate of 77.78%. The final group of participants consisted of 137 males and 143 females with an average age of 40.01 (SD = 11.18; range from 20 to 60 years old), with the majority of them being married (67.9%). Most of them worked in supervisory positions (55.0%). The average tenure (in years) at current position and work hours per week were 11.01 (SD = 9.58) and 40.01 (SD = 11.18), respectively.

Measures

All measures were translated into simplified Chinese language using standard translation and back translation procedures (Brislin, 1980).

Emotional suppression and cognitive reappraisal

We measured the habitual use of emotional suppression and cognitive reappraisal using Gross and John's (2003) Emotion Regulation Questionnaire (ERQ). The subscale of emotional suppression (α = .80 in Sample 1, α = .67 in Sample 2) includes four items. A sample item of emotional suppression is, "I control my emotions by not expressing them." The subscale of cognitive reappraisal (α = .89 in Sample 1, α = .79 in Sample 2) includes six items. A sample item is, "I control my emotions by changing the way I think about the situation I'm in." These items were not adjusted to the work context because the present research was mainly interested in individuals' habitual use of emotional suppression and cognitive reappraisal in general. Participants rated the extent to which they usually use the strategies in question via a 7-point Likert scale (1 = strongly disagree to 7= strongly agree).

Physical strain

We measured physical strain using 12 items from the Physical Symptoms Inventory (PSI; Spector & Jex, 1998). Participants were asked to rate the degree to which they have experienced symptoms (e.g., eyestrain, fatigue, and headache) during the last month on a scale of 1 (not at all) to 5 (every day). Alpha coefficients were .90 in Sample 1 and .73 in Sample 2.

Job-related affective well-being

We measured job-related affective well-being using the Job-related Affective Well-Being Scale (JAWS; Katwyk et al., 2000). Respondents were asked to identify how often they had experienced different emotions in the past month. Items begin with the stem "My job made me feel . . ." and substitute 20 different emotions (e.g., content, satisfied, anxious, and fatigued). A 5-point Likert response format was used in which 1 represents *never* and 5 represents *always*. The negative affect items were reversed and a total score was obtained by summing the positive and negative emotion scores (Katwyk et al., 2000). For convenience, average score was then calculated, with high scores indicating high levels of affective well-being; that is, experiencing positive emotion frequently, and negative emotion infrequently. Alpha coefficients were .91 in Sample 1 and .90 in Sample 2.

Demographic variables

We measured participants' chronological age based on their year of birth. Gender was controlled because previous research found that women report more psychological strain at work than men (Jick & Mitz, 1985). Gender was coded as 0 = male, 1 = female. Job tenure was controlled because prior research suggested that workers' job tenure might be related to their emotional experiences at work (Stevens, 2007; Yeung & Fung, 2012). Job position was controlled as older employees tended to hold higher level positions (managerial positions), which may affect their work experience and strain. Job position was coded as 0 = nonsupervisory position, 1 = supervisory position. Work hours per week were also controlled as employees may experience different levels of job satisfaction and emotional exhaustion as they work longer hours (Côté & Morgan, 2002).

RESULTS

Sample 1

Table 1 shows the descriptive statistics and correlations of all study variables. Compared with younger workers, older workers were more likely to work in supervisory positions (r = .17; p = .001), have longer job tenure (r = .35; p < .001), and work less hours per week (r = −.13; p = .02). People working in supervisory positions reported higher levels of job-related affective well-being (r = .18; p = .001) than people not working in supervisory positions. Employee age was not significantly related to the habitual use of emotional suppression (r = .03; p = .53) and cognitive reappraisal (r = −.07; p = .21).

Age differences in the habitual use of emotional suppression

To further test Hypothesis 1, a regression analysis including the control variables was conducted. As shown in Table 2, employee age was not significantly related to habitual use of emotional suppression (β = .01, p = .84). Thus, Hypothesis 1 was not supported.

Age differences in the effectiveness of emotional suppression

Hierarchical moderated regression analysis and simple slope analyses were conducted to test our moderation Hypotheses 2a and 2b (Tables 3 and 4; Cohen, Cohen, West, & Aiken, 2003). Control variables (gender, job position, job tenure, and work hours per week) were entered in Step 1, followed by the main effects (emotional suppression and age) in Step 2. We centered the control (job tenure and work hours per week) and predictor variables before putting them in the regression model and before computing the interaction terms. The two-way interaction term (Emotional suppression × Age) was entered in Step 3.

For physical strain, females and people with longer work hours per week were more likely to report physical strain (β = .15, p = .01; β = .12, p = .04). The inclusion of emotional suppression and age in the second step didn't significantly explain any additional amount of variance. However, the interaction term (β = −.15, p = .004) explained an additional 2.0% of the variance in physical strain. To illustrate this

Table 1. Means (*M*), Standard Deviations (*SD*), Range, and Correlations Between the Study Variables for Sample 1 (Below Diagonal) and Sample 2 (Above Diagonal)

Variables	Sample 1 (N = 340)			Sample 2 (N = 280)			1	2	3	4	5	6	7	8	9
	M	*SD*	Range	*M*	*SD*	Range									
1.Gender	0.50	0.50	0–1	0.49	0.50	0–1	—	−.13*	.01	.07	−.08	−.02	−.06	−.05	.03
2.Job position	0.24	0.43	0–1	0.45	0.50	0–1	−.16**	—	.23*	−.05	.37**	.11	.24**	.19**	.04
3.Job tenure	7.44	7.96	0.08–28	11.01	9.58	0.10–37	.07	−.06	—	−.11	.84**	.10	.56**	.45**	.07
4.Work hours/week	45.18	6.44	29–75	41.43	6.26	20–77	−.19**	.13*	−.12*	—	−.11	.07	−.00	−.14*	.12*
5.Age	40.61	7.79	22–55	40.01	11.18	20–60	.04	.17**	.35**	−.13*	—	.18**	.69**	.54**	.03
6.Suppression	4.58	1.27	1–7	4.63	0.94	1–7	−.02	−.04	.10	.02	.03	—	.37**	.18**	−.07
7.Reappraisal	5.67	1.05	1–7	5.48	0.78	1–7	.09	.15*	−.09	.05	−.07	.42**	—	.50**	−.01
8.Affective well-being	3.46	0.59	1–5	4.63	0.94	1–7	.05	.18**	−.09	−.05	−.01	.06	.18**	—	−.14*
9.Physical strain	2.00	0.69	1–5	3.49	0.51	1–5	.14**	−.09	.01	.08	.04	−.05	.05	−.49**	—

Note. Gender was coded as 0 = male, 1 = female. Job position was coded as 0 = nonmanagerial position, 1= managerial position.
*p < .05; **p < .01, all two-tailed tests.

Table 2. Multiple Regression Analysis for Habitual Use of Emotional Suppression

Variables	Habitual Use of Emotional Suppression			
	Sample 1 (N = 340)		Sample 2 (N = 280)	
	Step 1	Step 2	Step 1	Step 2
Intercept	4.65 (.11)	4.65 (.11)	4.57 (.10)	4.60 (.10)
Gender	−0.08 (.14)	−0.08 (.14)	−0.02 (.11)	0.01 (.11)
Job position	−0.12 (.16)	−0.13 (.17)	0.17 (.12)	0.06 (.12)
Job tenure	0.02 (.01)	0.02 (.01)	0.01 (.01)	−0.01 (.01)
Work hours/week	0.01 (.01)	0.01 (.01)	0.01 (.01)	0.01 (.01)
Age		0.002 (.01)		0.03 (.01) **
R^2	.00 *ns*	.00	.01 *ns*	.03*
ΔR^2	—	.00 *ns*		.03**

Note. Unstandardized coefficients (Standard errors) were reported. Gender was coded as 0 = male, 1 = female. Job position was coded as 0 = nonmanagerial position; 1= managerial position. ns, nonsignificant.
*p < .05; **p < .01, all two-tailed tests.

Table 3. Moderated Regression Analyses for Physical Strain

Variables	Physical Strain					
	Sample 1 (N = 340)			Sample 2 (N = 280)		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Intercept	1.93 (.06)	1.94 (.06)	1.94 (.06)	1.64 (.04)	1.63 (.04)	1.65 (.04)
Gender	0.21 (.08)**	0.20 (.08)**	0.21 (.08)**	0.01 (.04)	0.01 (.04)	0.01 (.003)
Job position	−0.12 (.09)	−0.15 (.09)	−0.17 (.09)	0.02 (.05)	0.04 (.05)	0.02 (.048)
Job tenure	0.001 (.01)	−0.001 (.01)	0.00 (.01)	0.002 (.002)	0.01 (.004)	0.004 (.004)
Work hours/week	0.01 (.01)	0.01 (.01)	0.01 (.01)	0.01 (.003)*	0.01 (.004) *	0.01 (.003)*
Suppression		−0.03 (.03)	−0.03 (.03)		−0.03 (.024)	−0.03 (.02)
Age		0.01 (.01)	0.01 (.01)		−.003 (.004)	−0.002 (.004)
Age × Suppression			−0.01 (.01)**			−0.01 (.002)*
R^2	.04*	.05*	.07**	.02 *ns*	.03 *ns*	.05*
ΔR^2	—	.01 *ns*	.02**		.01 *ns*	.02*

Note. Unstandardized coefficients (standard errors) were reported. Gender was coded as 0 = male, 1 = female. Job position was coded as 0 = nonmanagerial position; 1= managerial position. ns, nonsignificant.
*p < .05; **p < .01, all two-tailed tests.

interaction effect, the relationship was graphed for older (+1 *SD*) and younger (−1 *SD*) workers (Figure 1). A simple slope test found that emotional suppression was negatively associated with physical strain among older workers ($\beta = -.21$, $p = .01$), whereas the relation was not significant among younger workers ($\beta = .10$, $p = .20$). Thus, Hypothesis 2a was supported.

For job-related affective well-being, job position was the only control variable that had a significant effect ($\beta = .20$, $p < .001$) in the first step. The inclusion of emotional suppression and age in the second step didn't significantly explain any additional amount of variance. However, the interaction term ($\beta = .11$, $p = .03$) explained an additional 1.0% of the variance in job-related affective well-being. To illustrate this interaction effect, the relationship between emotional suppression and job-related affective well-being was graphed for older (+1 *SD*) and younger (−1 *SD*) workers (Figure 2). A simple slope test further revealed that emotional suppression was positively associated with job-related affective well-being among older workers ($\beta = .20$, $p = .01$), whereas such relation was not significant among younger workers ($\beta = -.03$, $p = .71$). Thus, Hypothesis 2b was supported.

Exploratory analyses: Are the moderation effects unique to emotional suppression?

To test whether the same moderation effect of employee age apply to cognitive reappraisal, we conducted additional analyses by including the same set of control variables in the first step, age, emotional suppression, and cognitive reappraisal at the second step, as well as their interaction terms with age in the third step.

For physical strain, a similar pattern of results was found. Females and people with longer work hours per week were more likely to report physical strain ($B = .21$, $SE = .08$, $p = .01$; $B = .01$, $SE = .01$, $p = .04$). The inclusion of age, emotional suppression, and cognitive reappraisal did not significantly explain any additional amount of variance. The interaction term between age and emotional suppression was still significantly related to physical strain ($B = -.003$, $SE = .001$, $p = .002$), whereas the interaction term between age and cognitive reappraisal was not significantly related to physical strain ($B = .001$, $SE = .001$, $p = .30$).

For job-related affective well-being, a similar pattern of results was found, too. Job position was the only control variable that had a significant effect ($B = .27$, $SE = .07$, $p < .001$). The inclusion of emotional suppression and age in the second step did not significantly explain

Table 4. Moderated Regression Analyses for Job-Related Affective Well-Being

Variables	Job-Related Affective Well-Being					
	Sample 1 ($N = 340$)			Sample 2 ($N = 280$)		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Intercept	3.35 (.05)	3.34 (.05)	3.34 (.05)	3.47 (.05)	3.50 (.05)	3.49 (.05)
Gender	0.09 (.06)	0.10 (.06)	0.09 (.06)	−0.04 (.06)	−0.001 (.05)	−0.003 (.05)
Job position	0.27 (.07)**	0.29 (.08)**	0.30 (.08)**	0.08 (.06)	−0.03 (.06)	−0.02 (.06)
Job tenure	−0.01 (.004)	−0.01 (.004)	−0.01 (.004)	0.02 (.002)**	0.001 (.004)	0.001 (.004)
Work hours/week	−0.01 (.01)	−0.01 (.01)	−0.01 (.01)	−0.01 (.004)	−0.01 (.004)	−0.01 (.004)
Suppression		0.04 (.03)	0.04 (.03)		0.05 (.03)	0.05 (.03)
Age		−0.002 (.004)	−0.003 (.004)		0.03 (.01)**	0.02 (.01)**
Age × Suppression			.01 (.003)*			.004 (.002)
R^2	.05**	.06**	.07**	.22**	.31**	.31**
ΔR^2	—	.01 *ns*	.01*		.09 **	.01 *ns*

Note. Unstandardized coefficients (standard errors) were reported. Gender was coded as 0 = male, 1 = female. Job position was coded as 0 = nonmanagerial position; 1 = managerial position. ns, nonsignificant.
*$p < .05$; **$p < .01$, all two-tailed tests.

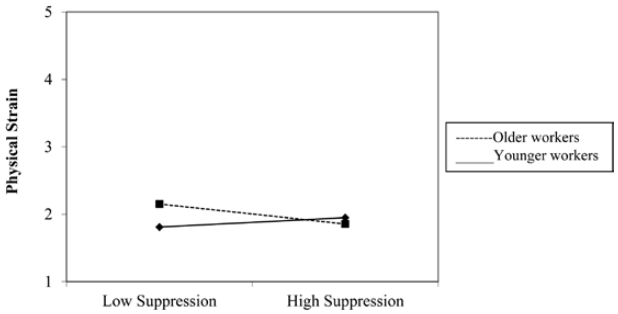

Figure 1. Relationship between habitual use of emotional suppression and physical strain (mean score) moderated by employees' age in Sample 1. *Note.* **The interaction effect was acquired after including the control variables.**

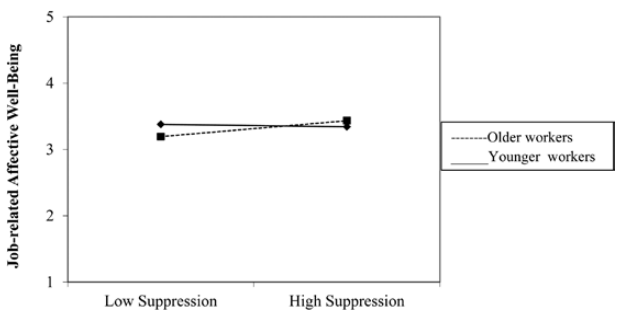

Figure 2. Relationship between habitual use of emotional suppression and job-related affective well-being (mean score) moderated by employees' age in Sample 1. *Note.* **The interaction effect was acquired after including the control variables.**

any additional amount of variance. The interaction term between age and emotional suppression was still significantly related to affective well-being ($B = .01$, $SE = .004$, $p = .01$), whereas the interaction term between age and cognitive reappraisal was not significantly related to physical strain ($B = -.001$, $SE = .001$, $p = .08$).

Sample 2

Descriptive statistics and correlations among all study variables are presented in Table 1. Older workers were more likely to work in supervisory position ($r = .37$; $p < .001$), have longer job tenure ($r = .84$; $p < .001$), and report higher levels of affective well-being ($r = .54$; $p < .001$) than younger workers. People holding jobs that had supervisory responsibility and longer job tenure reported higher levels of job-related affective well-being ($r = .19$; $p = .002$; $r = .45$; $p < .001$) than people holding jobs that had no supervisory responsibility and shorter job tenure. Work hours per week were positively related to physical strain ($r = .12$; $p = .04$) and were negatively related to affective well-being ($r = -.14$; $p = .02$). Finally, employee age was positively related to the habitual use of emotional suppression ($r = .18$; $p = .003$) and cognitive reappraisal ($r = .69$; $p < .001$).

Age differences in the habitual use of emotional suppression

The same regression analysis including the control variables was conducted to test Hypothesis 1. As shown in Table 2, employee age was significantly related to habitual use of emotional suppression ($\beta = .32$, $p = .01$). Thus, Hypothesis 1 was supported.

Age differences in the effectiveness of emotional suppression

Similar to Sample 1, the same hierarchical moderated regression analysis and simple slope tests were conducted to test our Hypotheses 2a and 2b (Tables 3 and 4). For physical strain, work hours per week was the only control variable that had significant effect ($\beta = .13$, $p = .03$). Neither age nor emotional suppression was significantly associated with physical strain. However, the interaction term ($\beta = -.14$, $p = .02$) explained an additional 2.0% of the variance in physical strain (a similar pattern of results ($\Delta R^2 = .03$, $p = .001$) were found when controlling for the baseline physical strain measured at Time 1). Simple slope test found that emotional suppression was negatively associated with physical strain among older workers ($\beta = -.21$, $p = .01$), whereas such relation was not significant among younger workers ($\beta = .07$, $p = .45$). Thus, Hypothesis 2a was supported.

For job-related affective well-being, job tenure was the only one of the control variables that had significant effects ($\beta = .42$, $p < .01$). Age was positively related to affective well-being ($\beta = .54$, $p < .01$) while emotional suppression was not ($\beta = .10$, $p = .07$). The interaction term was nonsignificant ($\beta = .08$, $p = .12$; even with the baseline affective well-being at Time 1 controlled, we failed to find a significant interaction effect [$\Delta R^2 = .00$, $p = .454$]). Thus, Hypothesis 2b was not supported.

Exploratory analysis: Are the moderation effects unique to emotional suppression?

After including cognitive reappraisal and the interaction term between age and cognitive reappraisal in the regression analysis on physical strain, a similar pattern of results was found. Work hours per week was the only control variable that had significant effects in the first step ($B = .01$, $SE = .003$, $p = .03$). The inclusion of age, emotional suppression, and cognitive reappraisal didn't significantly explain any additional amount of variance. The interaction term between age and emotional suppression was marginally significantly related to physical strain ($B = -.004$, $SE = .002$, $p = .08$), whereas the interaction term between age and cognitive reappraisal was not significantly related to physical strain ($B = -.001$, $SE = .001$, $p = .311$).

For job-related affective well-being, job tenure was the only control variable that had significant effects ($B = .02$, $SE = .002$, $p = .001$). In the second step, age was positively related to affective well-being ($B = .02$, $SE = .01$, $p = .002$). While emotional suppression was not significantly related affective well-being ($B = .02$, $SE = .03$, $p = .51$), cognitive reappraisal was significantly related affective well-being ($B = .17$, $SE = .05$, $p = .001$). In the third step, the set of the two interaction terms explained an additional 3.0% of the variance in affective well-being. Specifically, the interaction term between age and emotional suppression was nonsignificant ($B = .002$, $SE = .003$, $p = .51$), but the interaction term between age and cognitive reappraisal turned out to be significant ($B = .01$, $SE = .003$, $p = .01$). To illustrate this interaction effect, the relationship was graphed for older (+1 *SD*) and younger (−1 *SD*) workers (Figure 3). Simple slope test found that cognitive reappraisal was positively associated with affective well-being among older workers ($\beta = .87$, $p < .001$), whereas such relation was not significant among younger workers ($\beta = -.27$, $p = .18$).

DISCUSSION

The aging trend of the current labor force raises concerns about older workers' health and well-being (Conen, Henkens, & Schippers, 2012; Scott, Berger, & Garen, 1995). Consequently, our examination of age differences in the habitual use of emotional suppression as well as their implications for employees' health and well-being are very important and timely (e.g., Ng & Feldman, 2013).

We first tested Hypothesis 1 regarding age differences in the habitual use of emotional suppression. The relationship between employee age and the habitual use of emotional suppression was not significant in Sample 1. It is speculated that the narrow age range and limited variance impeded the detection of a significant relationship. Findings from Sample 2, which was a more diverse sample with a wider age range and variance, revealed a significant and positive relationship between age and the habitual use of emotional suppression.

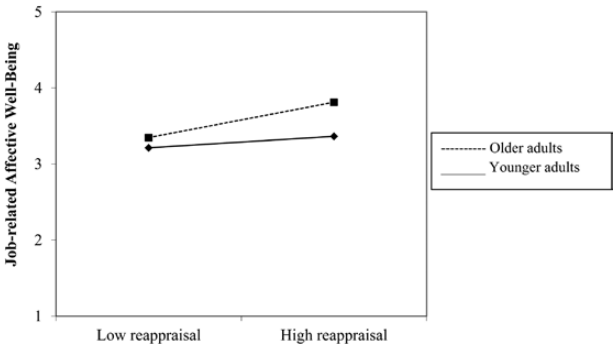

Figure 3. Relationship between habitual use of cognitive reappraisal and affective well-being (mean score) moderated by employees' age in Sample 2. *Note.* **The interaction effect was acquired after including the control variables.**

We also tested Hypothesis 2 regarding the moderation effect of age on the relationship between emotional suppression and physical strain and affective well-being. Our findings from Sample 1 and Sample 2 demonstrated that the habitual use of emotional suppression was negatively related to physical strain among older workers but not among younger workers (Hypothesis 2a). Findings from Sample 1 further revealed that the habitual use of emotional suppression was positively related to affective well-being among older workers but not among younger workers (Hypothesis 2b). However, findings from Sample 2 failed to support this hypothesis. A possible reason could be that there was a strong relationship between age and affective well-being in Sample 2, suggesting that older workers may generally tend to have higher affective well-being at work. This may reduce the possibility of detecting a significant interaction between age and emotional suppression in predicting affective well-being.

Exploratory analyses found only one out of the four interaction effects between age and cognitive reappraisal to be significant. Cognitive reappraisal was positively associated with affective well-being among older workers but not among younger workers. This result suggests that older workers may also benefit from the use of cognitive reappraisal. However, interpretation of the results should be cautious based on one significant interaction effect.

Theoretical and Practical Implications

Our findings suggest that older workers tend to have greater habitual use of emotional suppression. According to SST, older workers may prioritize emotional goals and be motivated to regulate their negative emotions. Prior research also found that older workers prefer passive and avoidant emotion regulation strategies in daily life (Blanchard-Fields et al., 2004). Following with theoretical development and empirical findings, our study demonstrated that emotional suppression, a similar passive strategy to cope with everyday problem, might be used more frequently by older workers to regulate their negative emotions and achieve their emotional goals. This is in contrast to the view that older adults experience age-related declines in cognitive capacities (Salthouse, 2012) and thus use emotional suppression infrequently. Our study illustrates an alternative perspective showing that older workers may actually use emotional suppression more frequently than younger workers.

Past research findings are largely based on younger adults and conducted in laboratory settings. Our findings that the habitual use of emotional suppression can reduce physical strain and improve affective well-being for older workers but not for younger workers suggest that older workers may experience improvement in the effectiveness of emotional suppression in the work setting. This is in accordance with the notion that aging process may not necessarily come along with losses (P. B. Baltes & Baltes, 1990). These findings also echo Ng and Feldman's (2013) arguments that improvements in emotion regulation could explain why older workers can generally maintain mental health and physical health.

Results of exploratory analyses suggested that the age moderation effects were relatively unique to emotional suppression. Emotional suppression may not necessarily be more cognitive demanding (Liu et al., 2008) and thus might be used more frequently than cognitive reappraisal in daily life (Brans et al., 2013). This is particularly true in work situations where emotional suppression is frequently used to maintain social harmony (Elias, 1978) and meet neutral display demands (Trougakos et al., 2011). This may explain why older workers may experience age-related increase in the effectiveness of emotional suppression after lifelong practices.

As for younger workers, our results revealed insignificant relationships between emotional suppression and physical strain and affective well-being, suggesting that the habitual use of emotional suppression is not necessarily related to harmful health consequences even among younger workers. These are inconsistent with prior findings based on younger adults in laboratory settings (e.g., Gross & Thompson, 2007). In contrast, research conducted in work settings reported similar findings (Liu et al., 2010). The habitual use of emotional suppression in the work settings may help employees meet neutral display demands at work (Trougakos et al., 2011), acquire organizational and social benefits at work (Liu et al., 2010), and reduce interpersonal conflicts (Birditt et al., 2005). These benefits might offset the undesirable effect of emotional suppression among younger workers. Our research provides a new perspective regarding the effect of emotional suppression among workers and future research could continue examining other consequences of emotional suppression in work settings.

With regards to practical implications, our findings indicate that older workers tend to have greater habitual use of emotional suppression. Practitioners should be aware that older workers may use emotional suppression more frequently and there are age differences in relation to the effectiveness of emotional suppression in the workplace (Scheibe & Zacher, 2013). However, additional studies of this topic are still needed before we can give out further suggestions to practitioners.

Limitations and Future Directions

Though the current study has several strengths (e.g., time-lagged design, cross-validation by recruiting two unique and diverse samples), it is not without limitations. The present study measured all research variables via self-reports, which may lead to the potential confounding effect of the common method bias (Podsakoff et al., 2003). However, we did take steps to reduce this bias. First, different scaling formats were used to minimize response biases (Podsakoff et al., 2003). Second, we measured emotional suppression and employee health and well-being outcomes separately. Third, the moderator variable, employee age, is an objective measure that is relatively less vulnerable to common method variance, as most people typically report it correctly in anonymous surveys. Finally, research has suggested that common method variance usually inflates main effects, which in turn increases the difficulty of detecting significant interaction effects (Podsakoff et al., 2003). Thus, it has been suggested that findings based on moderation effects are less prone to common method bias (Siemsen, Roth, & Oliveira, 2010).

A second major limitation is that the magnitudes of the interaction effects were relatively small, which raises the question of the practical applications. However, past research has shown that it is common to find interactions accounting for 1–3% of the criterion variance in field studies (e.g., McClelland & Judd, 1993). We also tried to replicate the interaction effects in a more diverse sample (Sample 2). The results supported the relatively small but stable magnitude of the interaction effect on physical strain. Researchers have suggested that the explanation of even a small proportion of unique variance in health and well-being outcomes could have important implications (e.g., Jex & Bliese, 1999). As such, the interaction effects in predicting physical strain and affective well-being are practically meaningful when considering the increasing health insurance costs in recent years (e.g., Ganster & Rosen, 2013).

We acknowledge that individuals with more habitual use of emotional suppression may underreport their well-being, whereas people with less habitual use of emotional suppression vary in their reports of well-being in the expected directions (we thank for an anonymous reviewer for this comment). Prior research has reported a positive relationship between the habitual use of emotional suppression and self-reported negative emotional experiences (Gross & John, 2003), suggesting that high suppressors may not necessarily underreport their well-being. Nonetheless, future studies are recommended using other reports or more objective indicators of health and well-being.

Another limitation is that our findings might be culture-specific. Emotional suppression is usually used in a broad range of situations among Asians (Butler, Lee, & Gross, 2007). For example, it is important for Chinese people to maintain social harmony, and thus Chinese employees may use emotional suppression more frequently than their Western counterparts (Butler et al., 2007). Emotional suppression was found to be related to adverse psychological functioning (depressed mood and life satisfaction) among European American college students, but not for Hong Kong Chinese students (Soto, Perez, Kim, Lee, & Minnick, 2011). However, laboratory research also found that down-regulating negative emotion was less cognitively costly for older adults in an American sample (Scheibe & Blanchard-Fields, 2009), suggesting that the same interaction effect may generalize to American participants. Future research could further examine age differences in emotional suppression in relation to other outcomes in other cultures.

It is also important to explore mechanisms underlying age differences in the health and well-being consequences of the habitual use of emotional suppression. Older adults may have stronger motivation than younger adults to control or suppress their negative emotions (Blanchard-Fields, 2007; Gross et al., 1997). And they can also learn from their life experiences about emotional suppression as they grow old (Blanchard-Fields et al., 2004). These age-related changes may help older workers use emotional suppression more effectively, which benefits their health and well-being. Future research can directly examine these age-related changes in motivational processes (e.g., emotional goals) that may explain why older workers' habitual use of emotional suppression becomes more effective. Related to this, future research may also explore other potential organizational and social rewards of emotional suppression at work (Liu et al., 2010).

CONCLUSIONS

This research revealed age differences in the use and the effectiveness of emotional suppression. Compared with younger workers, habitual use of emotional suppression might be more frequently used by older workers and may become more effective for them. Emotional suppression could be a potential strategy for them to maintain their health and well-being.

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