Impacts of Suppression on Emotional Responses and Performance Outcomes: An Experience-Sampling Study in Younger and Older Workers

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Objectives. Past studies have demonstrated that older adults used less emotional suppression to regulate their emotions than did younger adults, but the effectiveness of using this emotion regulatory strategy on psychosocial well-being across age remains largely unexplored. The present study adopted an experience-sampling method to examine whether the impacts of momentary employment of emotional suppression on momentary positive and negative emotions and job performance would be different by age.

Method. Eighty-seven Chinese insurance workers, aged between 18 and 61 years, participated in a 5-day sampling study. Their affective responses at work, momentary task performance, and sales productivity were recorded.

Results. Results showed that older workers’ greater use of suppression at work was associated with lower intensity of negative emotions, whereas such association was not found among younger workers. Moreover, greater use of suppression over the sampling period was significantly predictive of sales productivity of older workers, but such a positive association was not shown in younger workers.

Discussion. These findings reveal that the use of suppression at work may be more effective for older workers than for younger workers.

Key Words: Chinese workers—Emotion regulation—Emotional responses—Job performance—Suppression.

There are prevailing stereotypes that older workers are slow, resistant to changes and trainings, and perform poorly at work (Greller & Simpson, 1999; Hedge, Borman, & Lammlein, 2006; Maurer, 2007). Such differences could be due to age-related changes in cognitive, physical, and sensory abilities (e.g., Craik & Jennings, 1992; Czaja & Sharit, 1993; Schaie, 1994) or generational differences in work values (e.g., Smola & Sutton, 2002; Twenge, Campbell, Hoffman, & Lance, 2010). Yet, prior meta-analytic studies have revealed that there is no consistent negative relationship between age and job performance (e.g., McEnvoy & Cascio, 1989; Ng & Feldman, 2008), suggesting that older workers may actively employ strategies to maintain performance in the face of age-related changes in abilities. Life-span developmental psychologists stress that increasing age is associated with a greater focus on emotionally meaningful goals (Carstensen, Isaacowitz, & Charles, 1999) and better regulation of emotions (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000). Past studies also demonstrated that older adults used less emotional suppression to regulate their emotions than did younger adults (John & Gross, 2004). However, although there have been empirical studies on impacts of emotional suppression among young adults, mostly American college students (Butler et al., 2003; Gross & John, 2003; Richards & Gross, 2000), its impacts among older adults remain largely unknown. The present study aimed at filling in this gap by examining the association among suppression, emotional responses, and job performance among older Chinese adults relative to their younger counterparts.

Emotion Regulatory Strategies

Emotion regulation involves the processes in which emotions are modified or regulated (Gross, 2007). Individuals regulate both negative and positive emotions, by either decreasing or increasing them. Regulating emotions can take place before an emotion is elicited (e.g., cognitive reappraisal) or after an emotion is elicited (e.g., suppression; Carstensen, Fung, & Charles, 2003; Gross & John, 2003). In the present study, we focus on one particular form of emotion regulatory strategies, suppression, because it has been related to clear social consequences (Butler, Lee, & Gross, 2007). Suppression refers to a situation in which the person hides actual emotional responses and constrains emotion-expressive behaviors. For instance, a person feels angry but hides this emotion and pretends to be calm. Such effortful management of observable emotional expression is commonly found among service-oriented employees such as sales representatives and customer service workers (Grandey, 2000; Hochschild, 1983).
Impacts of Suppression on Emotional Responses and Performance Outcomes Among Young Adults

The use of suppression may help individuals inhibit the behavioral manifestation of negative emotions. However, negative emotions are just suppressed but not reduced, and a high level of distress is still found inside the person (Carstensen et al., 2003; Gross, 1998; Gross & John, 2003). Negative impacts of suppression have been shown in previous studies. For example, experimental studies conducted among young Americans revealed that individuals who consciously suppress their ongoing emotion-expressive behaviors are less likely to share their emotions with others and less reactive to the emotional cues of their social partners, which in turn disrupt their social interactions (Butler et al., 2003). Moreover, experimental studies among undergraduate students have shown that suppression is associated with poorer memory and interpersonal functioning and more negative emotions but fewer positive emotions (Gross, 1998; Gross & John, 2003; Richards & Gross, 2000). Such repeated and effortful management of emotional responses also consume extra cognitive resources, which could otherwise be directed to optimal performance in other domains of everyday life (John & Gross, 2004).

Similarly, past literature on emotion labor (i.e., those service-oriented workers who manage their emotions for a wage; Hochschild, 1983) provides further evidences on the impact of suppression. In particular, the use of surface acting, which is conceptually similar to emotional suppression (Grandey, 2000), may give rise to insincere emotional expressions among customer service workers and consequently may lower customers’ satisfaction with services (Judge, Woolf, & Hurst, 2009; Rafaeli & Sutton, 1987). These findings suggest that the use of suppression (or surface acting) would result in negative affective and social consequences. However, most of past research on emotion regulation focuses on young adults (e.g., Butler et al., 2007; Goldberg & Grandey, 2007), without a clear understanding of whether those findings could be generalized to older adults.

Potential Age Differences

Findings of past studies suggest that older and younger adults would employ different emotion regulatory strategies for managing their emotions (Carstensen et al., 2000; Gross et al., 1997; John & Gross, 2004). Cross-sectional study by John and Gross (2004), for example, demonstrated that older women exhibited a lower level of suppression than did younger women. However, it is not clear whether the use of suppression may have different outcomes for different age groups.

The existing literature on the impacts of suppression reviewed earlier largely suggests that younger adults’ use of suppression is related to negative affective and social outcomes. Socioemotional selectivity theory (SST) asserts that with age, individuals focus less on knowledge-related goals—such as information seeking and horizon expansion, but more on emotional goals—such as maintaining a positive emotional state (Carstensen et al., 1999, 2003; Fung, Carstensen, & Lutz, 1999). The focus on emotional goals motivates older adults to better control their emotions (Carstensen et al., 2000; Gross et al., 1997) and to adopt various emotion regulatory strategies to manage their affective responses. Based on this theory, we hypothesize that suppression may be useful to older adults who emphasize emotionally meaningful interactions and better management of their emotions. Indeed, a recent daily experience study has demonstrated that older people who avoided arguments with their social partners reported less affective reactivity than younger and middle-aged counterparts (Charles, Piazza, Luong, & Almeida, 2009). This finding suggests that the impacts of regulatory behaviors on affective responses would differ between younger and older adults, and it is important to consider individual variations such as age when examining the effectiveness of emotion regulatory strategies on psychosocial well-being.

The Present Study

The present study tested the hypothesis that age would moderate the impacts of suppression on emotional responses and job performance. With an increasing number of older workers in the labor market in both Western and Eastern countries (Census and Statistics Department, 2011; U.S. Department of Labor, 2011), it becomes more critical for management personnel to understand the psychological processes and adjustment of older workers, in order to maintain knowledge and skills in the companies. With technological advancement, most jobs, especially service-oriented or managerial jobs, depend less on physical efforts but more on interpersonal skills and emotional intelligence (Kanfer & Ackerman, 2004). Effective emotion regulation enables workers to remain positive and calm in the face of negative interactions and distress. Past studies examining workplace affect have revealed that positive and negative emotions at work are predictive of overall job satisfaction (Fisher, 2000), task performance (Sharma & Levy, 2003; Tsai, Chen, & Liu, 2007), and decision making (Isen, 2001). These studies pinpoint the importance of emotions in work life (Diefendorff & Gossenrand, 2003; Morris & Feldman, 1996) and suggest that effectively managing one’s emotions can help to enhance performance at work, especially those work tasks involving close interactions with others (Barsade & Gibson, 2007; Grandey, 2000).

Moreover, most of prior research on emotion regulatory strategies has been studied with regard to general consequences of regulatory strategies in everyday life, with little attention to momentary changes in affective responses in the actual work situations (Cote, 2005; Tschan Rochat, & Zapf, 2005). Different situations trigger a distinctive pattern
of affective experiences; thus, the type of strategies for regulating emotions may differ across situations. For example, in an event-sampling study examining 78 younger employees with a mean age of 25 years, almost 90% of participants exhibited the job-required emotions when interacting with their clients but only 31% did so when interacting with coworkers (Tschan et al., 2005). These results suggest that the use of emotion regulatory strategies varies across work situations. To minimize the effect of retrospective recall of work experiences, as adopted in the cross-sectional and event-sampling designs (Alliger & Williams, 1993), the present study adopted the experience-sampling approach to assess moment-to-moment use of suppression, emotional responses, and task performance. Such an in-depth examination of emotion regulation at work could provide a better estimate of the impacts of emotion regulatory behaviors on affective responses and performance outcomes.

In addition, there has not yet been any experience-sampling study examining the psychosocial impacts of emotion regulatory strategies among workers of a wide age range. For example, in the experience-sampling study by Alliger and Williams (1993) and the event-sampling study by Tschan and colleagues (2005), the mean age of the sample was 32.2 and 25 years, respectively. Moreover, previous studies using the experience-sampling method mainly focused on the relationship association between momentary emotions and job performance (e.g., Fisher & Noble, 2004; Miner & Glomb, 2010), without assessing the effectiveness of emotion regulatory strategies on job-related outcomes. Therefore, the present study advanced the literature by examining the impacts of momentary employment of suppression on momentary emotional responses and momentary task performance and tested whether age would moderate such associations.

The insurance industry provides the setting for this study. The nature of the job behaviors required by the personnel in this industry offers a number of advantages in the context of this study. First, insurance employees depend more on interpersonal skills but less on physical efforts. When selling insurance products and interacting with clients, insurance employees have more opportunities to regulate their emotions. Second, past studies have shown that types of job and types of performance measures moderate the relationship between age and job performance (Ng & Feldman, 2008; Sturman, 2003); thus, examining workers from the same industry could minimize the confounds of job nature. In the insurance industry, performance evaluation is largely based on sales productivity, which therefore provides an objective assessment of job performance in addition to the self-reported measure of momentary task performance. Given these factors, the present study examined the association among moment-to-moment emotional suppression, positive and negative emotions, task performance, and sales productivity among a sample of insurance workers. We hypothesize that the negative effects of momentary suppression on momentary emotional responses, momentary job performance, and sales productivity would be found to a greater extent among younger workers than older workers.

Past studies on organizational psychology have consistently showed that job satisfaction is predictive of job performance (e.g., Judge, Thoresen, Bono, & Patton, 2001), whereas job control is critical to job-related well-being (Karasek, 1979; Yeung & Tang, 2001). To minimize the potential impacts of job satisfaction and job control on job performance, these two variables were also measured and statistically controlled in the regression analysis.

**Method**

**Participants**

Eighty-seven insurance workers took part in the experience-sampling study. They were originally recruited for a cross-sectional survey study of Chinese insurance workers in Hong Kong. The cross-sectional survey (N = 352) was conducted in four local insurance companies. Participation in this survey study was voluntary. Participants who were interested in participating in the experience-sampling study provided their E-mail or phone number for future contact. Participants were aged between 18 and 61 years (M = 38.55, SD = 11.18), with 47.1% aged 40 years or older. In this study, we followed the definition of older workers used in previous studies: Older workers were defined as those aged 40 years or older and younger workers were those below 40 years (Hedge et al., 2006; Ng & Feldman, 2008). Fifty-two percent of the sample was female, and 56.3% were married. More than 60% obtained secondary education, and 31% received tertiary education. The mean length of working experience in insurance company was 57.24 months (SD = 51.20).

Participants who took part in this experience-sampling study were generally similar to those who joined the cross-sectional survey but did not participate in the experience-sampling study in terms of age, education, t(350) = 1.06 and 1.73, respectively, and sex, χ²(1) = 0.56, ns, indicating the representativeness of this subsample.

**Procedure**

Research ethics approval was obtained from the university before the implementation of the project. Participants were contacted individually by phone or E-mail. When they agreed to take part in the sampling study, they were scheduled to meet the researcher in person. Informed consent was first obtained from each participant, followed by a demonstration to familiarize them with the study procedure and the operations of the handheld computer. Because the study procedures and the potential constraints incurring from joining the sampling study were fully explained to the participants, none of them dropped out in the midst of the study.
SUPPRESSION

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The experience-sampling study lasted for 5 consecutive working days, from Monday to Friday. During the sampling period, each participant carried a programmed handheld computer when they were working. When the alarm of the handheld computer rang, participants were instructed to answer questions with reference to the situation they were in right before the alarm. Their responses were recorded in the handheld computer. Automation settings of this sampling study followed the guidelines of the experience-sampling program (Barrett & Barrett, 2001; Intel Research Seattle, 2006). The handheld computer was programmed to signal randomly 5 times a day, between 9:00 a.m. and 6:00 p.m. (i.e., the period of working hours for most insurance workers in Hong Kong). The maximum duration of each alarm was 15 min, and such duration allowed participants to have sufficient time to respond to the alarm. If participants did not respond to items in the handheld computer in 15 min, it was regarded as a missing trial. Each participant responded to maximally 25 alarms. Data were retrieved from the handheld computer by the researcher after each participant had completed the study. A monetary reward, $300 (in Hong Kong dollars, equivalent to U.S. $38.50), was given to each participant as honorarium.

Measures

In each sampling report, there were measures of momentary positive and negative emotions, suppression, task performance, and work situation. When answering these questions, participants were instructed to think about the situation that they were in before the alarm rang. In addition to the momentary measures, sales productivity (as an index of global job performance) was assessed at the end of the sampling study in a separate questionnaire. Except those scales with a validated Chinese version (see description below), all measurement scales in the present study were translated into Chinese by two bilingual translators using the back-translation procedure.

Momentary positive and negative emotions.—With reference to prior studies on emotions at work (Fisher, 2000; Van Katwyk, Fox, Spector, & Kelloway, 2000), this study measured six positive emotions (happy, joyful, enthusiastic, excited, calm, and relaxed) and three negative emotions (angry, sad, and anxious) that participants experienced at a particular work situation. They rated the nine emotion terms on a 5-point scale, ranging from 1 = not at all to 5 = a great deal. The Chinese version of these emotional terms was adopted from cross-cultural study by Matsumoto and colleagues (2008) on emotion regulation. Correlation analyses showed that momentary suppression moderately correlated with global suppression, r = 0.35, p = .001.

Work situation.—At the end of each sampling trial, participants indicated the work situation that they were in immediately before the alarm rang. They responded to this item by choosing one of the options provided: 1 = having a meeting with clients; 2 = having a phone call with client; 3 = having a meeting with supervisor/coworkers; 4 = working on administrative tasks; 5 = making a phone call to recruit new clients; 6 = having a training session; 7 = taking a break/mealtime; 8 = others. Response reports for Situation 8 were excluded from final analyses because of its unspecified nonwork-related nature. Sampling reports with incomplete responses were not analyzed because of the unknown nature of the work situation that the participant was in. The final number of complete sampling reports was 1,263 (mean sampling report = 14.52, SD = 3.84, range = 6 – 22). Preliminary analyses did not show any significant moderation effect of work situation on the association among suppression, emotional responses, and job performance; thus, work situation was excluded from the analyses reported subsequently.

Measures of job performance.—In this study, two indexes were adopted to measure momentary and global job performance. The momentary measure of job performance was task performance. Participants were asked to rate their performance in handling the work task on a 4-point scale (1 = not good at all to 4 = very good). The global measure of job performance was sales productivity (in Hong Kong dollars), which was indicated by the amount of annualized commission received by the insurance worker. Annualized commission is a proportion of annualized premium that the insurance worker can obtain as a bonus from successfully selling an insurance.
policy (Office of the Commissioner of Insurance, 2004). Insurance sales statistics were recorded in the computerized network system of the insurance company and were updated daily. At the end of the sampling study, participants retrieved their sales productivity from the computerized network and reported such statistics in a separate questionnaire. This performance measure was assessed only at the end of the experience-sampling study because it was expected that that sales of insurance policies would be less likely to change moment by moment.

Demographic variables and potential covariates.—Before the experience-sampling study, demographic variables including age, sex, education level, and marital status were recorded. Age was measured and analyzed as a continuous variable. Job satisfaction and job control were also measured as the covariates. Kunin’s single-item faces scale (Brief, 1998) was used to measure overall job satisfaction, whereas the Chinese version of Karasek’s measure (Yeung & Tang, 2001) of job decision latitude was used to assess participants’ ability to control their job activities. Moreover, participants also rated their perceived mental and physical health (Fung & Carstensen, 2004) and reported their length of work experience in the insurance industry.

RESULTS

Overview of Analysis

Multilevel analyses and hierarchical regression analyses were performed to address the research question on whether age moderated the relationship among suppression, emotional responses, and job performance. First, a series of multilevel analyses was conducted. Level 1 consisted of momentary scores of suppression, positive emotions, negative emotions, and task performance. Age was included in Level 2 as a continuous variable, and education and work experience were the covariates. All variables in Levels 1 and 2 were centered to the grand mean of the respective variable in the analysis. Restricted maximum likelihood was used as the estimating technique in the multilevel analysis. The multilevel analyses first started with a null model (a model without any predictors). Model 1 was conducted to test the main effect of suppression on emotions/task performance. Model 2 was conducted to test whether the effect of suppression on emotions/task performance would be moderated by age. These models were tested separately for positive emotions, negative emotions, and task performance (i.e., in total nine multilevel analyses were conducted).

Second, hierarchical regression analysis was conducted to test the impact of suppression on sales productivity and whether it was moderated by age. Because sales productivity was only assessed once, multilevel analysis was not appropriate for analyzing the data. Momentary scores of suppression and positive and negative emotions were first aggregated for each participant. We then tested the impact of suppression on sales productivity by regression analyses, with positive and negative emotions controlled as the covariates.

Descriptive Statistics

The means or percentages, standard deviations, and correlations between variables are presented in Table 1. Education was negatively associated with the global measure of suppression \((r = -0.306, p < .01)\), whereas work experience was positively associated with age \((r = 0.567, p < .001)\); thus, education and work experience were statistically controlled in the multilevel and regression analyses. Job satisfaction and job control were significantly correlated with sales productivity \((r = 0.222 \text{ and } 0.246, p < .05)\); thus, they were included in the regression analysis as covariates.

Table 2 summarizes the results of multilevel models. A null model was computed separately for each dependent variable to demonstrate whether there was sufficient within- and between-individual variances. The intraclass correlation was computed to show the ratio of the between-individual variance to the total variance. Results revealed that there was substantial within- and between-individual variance in these three variables, suggesting that emotional responses and task performance varied substantially across situations.

Impacts of Momentary Suppression on Emotional Responses

Model 1 of multilevel analyses tested the main effect of suppression on emotions. Results demonstrated that suppression was significantly predictive of negative emotions, \(\beta = 0.092, p < .001\). Model 2 examined whether age moderated the relationship between suppression and emotional responses. A significant age by suppression interaction effect was found on negative emotions, \(\beta = -0.004, p < .05\). However, the main effect of suppression and the interaction effect between age and suppression did not predict positive emotions.

To illustrate the age by suppression interaction effect on negative emotions, Figure 1 was plotted based on the equation of Model 2. Scores of momentary negative emotions at each level of momentary suppression were calculated to illustrate the pattern of association for those aged below 40 years and those aged 40 years or older. It shows that among older employees, greater use of suppression was associated with lower intensity of negative emotions, but this relationship was not found among younger employees.

Impacts of Momentary Suppression on Job Performance

The impacts of momentary suppression on momentary task performance and sales productivity were assessed by multilevel and regression analyses, respectively. Similar to the multilevel analyses on emotional responses described
Table 1. Correlation Analysis Among Demographic and Study Variables (N = 87)

<table>
<thead>
<tr>
<th>Demographic variables and covariates</th>
<th>Mean (SD) of younger employees</th>
<th>Mean (SD) of older employees</th>
<th>Mean (SD) of the whole sample</th>
<th>1</th>
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<th>12</th>
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<tbody>
<tr>
<td>1. Age</td>
<td>29.47 (5.61)</td>
<td>48.70 (5.89)</td>
<td>38.31 (11.20)</td>
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<tr>
<td>2. Sex (1 = female)</td>
<td>40.4%</td>
<td>65.0%</td>
<td>51.7%</td>
<td>.310**</td>
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<tr>
<td>3. Education (1–5)</td>
<td>3.53 (0.65)</td>
<td>3.35 (0.62)</td>
<td>3.44 (0.64)</td>
<td>-.166</td>
<td>-0.060</td>
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<tr>
<td>4. Health</td>
<td>3.44 (0.78)</td>
<td>3.65 (0.69)</td>
<td>3.54 (0.75)</td>
<td>.173</td>
<td>-.154</td>
<td>.241*</td>
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<tr>
<td>5. Work experience (in months)</td>
<td>34.85 (37.96)</td>
<td>89.46 (52.23)</td>
<td>59.96 (52.51)</td>
<td>.567***</td>
<td>.188</td>
<td>-.408***</td>
<td>.022</td>
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<tr>
<td>6. Job satisfaction</td>
<td>5.40 (1.26)</td>
<td>5.18 (0.98)</td>
<td>5.30 (1.14)</td>
<td>-.149</td>
<td>-0.040</td>
<td>.201</td>
<td>.514***</td>
<td>-.152</td>
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<tr>
<td>7. Job control</td>
<td>4.10 (0.50)</td>
<td>3.88 (0.56)</td>
<td>4.00 (0.54)</td>
<td>-.246*</td>
<td>-.201</td>
<td>.145</td>
<td>.103</td>
<td>-.069</td>
<td>.230*</td>
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<tr>
<td>Momentary assessment of variables</td>
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<tr>
<td>8. Momentary suppression*</td>
<td>3.74 (1.09)</td>
<td>3.81 (0.94)</td>
<td>3.77 (1.02)</td>
<td>.010</td>
<td>-.071</td>
<td>-.046</td>
<td>.043</td>
<td>-.070</td>
<td>.009</td>
<td>.011</td>
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<tr>
<td>9. Momentary positive emotions*</td>
<td>2.85 (0.44)</td>
<td>2.74 (0.63)</td>
<td>2.80 (0.54)</td>
<td>.009</td>
<td>-.177</td>
<td>.061</td>
<td>.163</td>
<td>-.047</td>
<td>.088</td>
<td>.265*</td>
<td>.015</td>
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<tr>
<td>10. Momentary negative emotions*</td>
<td>1.73 (0.61)</td>
<td>1.59 (0.49)</td>
<td>1.66 (0.56)</td>
<td>-.185</td>
<td>-.034</td>
<td>-.054</td>
<td>-.261*</td>
<td>-.100</td>
<td>-.162</td>
<td>-.010</td>
<td>.185</td>
<td>.033</td>
<td></td>
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</tr>
<tr>
<td>11. Momentary task performance*</td>
<td>2.67 (0.44)</td>
<td>2.58 (0.45)</td>
<td>2.63 (0.45)</td>
<td>-.126</td>
<td>-.232*</td>
<td>.086</td>
<td>.197</td>
<td>-.017</td>
<td>.096</td>
<td>.231*</td>
<td>.005</td>
<td>.367***</td>
<td>-.299**</td>
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<tr>
<td>Global assessment of variables</td>
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<tr>
<td>12. Global suppression</td>
<td>3.47 (0.89)</td>
<td>3.70 (0.96)</td>
<td>3.58 (0.93)</td>
<td>.174</td>
<td>-.027</td>
<td>-.306**</td>
<td>.006</td>
<td>.197</td>
<td>.079</td>
<td>-.042</td>
<td>.353***</td>
<td>-.008</td>
<td>-.062</td>
<td>.033</td>
<td></td>
</tr>
<tr>
<td>13. Sales productivity</td>
<td>86,151 (72,032)</td>
<td>122,669 (111,259)</td>
<td>102,941 (93,402)</td>
<td>.173</td>
<td>.166</td>
<td>.113</td>
<td>.108</td>
<td>.148</td>
<td>.222*</td>
<td>.246*</td>
<td>.155</td>
<td>.100</td>
<td>.126</td>
<td>-.042</td>
<td>.029</td>
</tr>
</tbody>
</table>

Notes: *Individuals' aggregated scores across multiple sampling reports.
*p < .05, **p < .01, ***p ≤ .001.

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earlier, Models 1 and 2 were conducted to examine the relationships among suppression, age, and momentary task performance. The results of Model 2 showed no significant age by suppression interaction effect ($\beta = 0.004$) nor main effect of suppression ($\beta = 0.013$) on momentary task performance.

Hierarchical regression analysis was conducted to test the impact of suppression on sales productivity. Block 1 consisted of mean scores of momentary positive and negative emotions, and job satisfaction, job control, education, and work experience were statistically controlled as covariates; Block 2 consisted of age (as a continuous variable) and the mean score of momentary suppression; and Block 3 included the age by suppression interaction. Results showed a significant age by suppression interaction, $\beta = 0.281$, $p < .01$, on sales productivity (Table 3). To illustrate this interaction effect, Figure 2 was plotted by dividing the sample into younger and older age groups (as in Figure 1). Older workers who employed more suppression over the sampling period reported higher levels of sales productivity ($\beta = 0.366$), whereas such a positive relationship was not observed among younger workers ($\beta = -0.167$).

### Table 2. Multilevel Analysis Predicting Momentary Positive Emotions, Negative Emotions, and Task Performance

<table>
<thead>
<tr>
<th></th>
<th>Momentary positive emotions</th>
<th>Momentary negative emotions</th>
<th>Momentary task performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Null model</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td><strong>Fixed effects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>2.799***</td>
<td>2.777***</td>
<td>2.777***</td>
</tr>
<tr>
<td>Level 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suppression</td>
<td>-0.052</td>
<td>-0.052</td>
<td>0.092***</td>
</tr>
<tr>
<td>Level 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-0.000</td>
<td>-0.121</td>
<td>0.088</td>
</tr>
<tr>
<td>Working experience</td>
<td>0.000</td>
<td>-0.002</td>
<td>0.002</td>
</tr>
<tr>
<td>Age</td>
<td>0.002</td>
<td>-0.005</td>
<td>-0.010</td>
</tr>
<tr>
<td>Cross-level interaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age x suppression</td>
<td>-0.000</td>
<td>-0.004*</td>
<td>0.004</td>
</tr>
<tr>
<td><strong>Random effects</strong></td>
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<td></td>
</tr>
<tr>
<td>Residual</td>
<td>0.213***</td>
<td>0.196***</td>
<td>0.196***</td>
</tr>
<tr>
<td>Intercept</td>
<td>0.273***</td>
<td>0.264***</td>
<td>0.272***</td>
</tr>
<tr>
<td>Slope of suppression</td>
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<td>0.028***</td>
<td>0.012*</td>
</tr>
<tr>
<td>Intraclass correlation</td>
<td>0.562</td>
<td>0.574</td>
<td>0.581</td>
</tr>
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</table>

*Note. *$p < .05$. **$p < .01$. ***$p \leq .001$.*

### Discussion
The present study adopted an experience-sampling method to investigate the impacts of on-the-job momentary suppression on emotional responses and job performance among younger and older working adults and tested whether age would moderate such associations.

### Influences of Suppression on Emotions and Performance Outcomes
Results of this study revealed that the momentary use of suppression was positively associated with a lower intensity of negative emotions among older workers, but not younger workers. Older employees who used more suppression at work reported higher sales productivity; however, such a positive effect was not observed among younger workers. Prior studies showed that suppression was often associated with poorer interpersonal functioning, more negative emotions, and fewer positive emotions (Gross & John, 2003; ...
By closely examining on-the-job emotional responses, emotion regulatory strategies, and task performance, findings of this study reveal that the use of suppression is not necessarily associated with negative social consequences. Older workers who used higher levels of suppression did not experience higher negative emotions momentarily. On the contrary, such use of suppression was associated with a lower level of momentary negative emotions and higher insurance sales. Such positive impacts of suppression, however, were not shown among younger workers. Prior research on emotional labor has consistently shown that suppressing one’s true feeling (i.e., surface acting) is positively associated with emotional exhaustion and negatively related to quality of service delivery (Goldberg & Grandey, 2007; Grandey, 2003). Yet, our findings reveal that such negative consequences of suppression may not occur for older adults. Findings from this study highlight the importance of considering individual variations such as age when examining the effectiveness of emotion regulatory strategies on psychosocial well-being.

Note that although Butler and colleagues (2007) observed several negative social consequences for suppression among young female Americans, they also noticed that when suppression did not affect interpersonal responsiveness in a social situation or elicit any experience of negative feelings, the social partner was less likely to perceive the communication with the suppressor as negative and hostile. This implies that suppression is not necessarily destructive. Its consequence largely depends on the emotional experiences induced. Applying this to explain the age differences in the impacts of suppression observed in this study, it may be the case that most clients are peripheral social partners to the employees. Research on age-related changes in social relations has revealed that whereas younger people who prioritize knowledge-related goals seek to interact with a wide variety of social partners, even those who are peripheral, older people who prioritize emotional goals focus on the few social partners who are emotionally close to them (Fung, Stoeber, Yeung, & Lang, 2008). When dealing with peripheral social partners such as clients and coworkers, older workers, who do not care much about the social relationships with these social partners, may be less emotionally affected by the social consequences of suppression. Instead, they may even find suppression a cost-effective strategy for them to handle the peripheral social interaction without much personal involvement, thereby enabling them to achieve higher insurance sales in the longer run.

In addition, these findings suggest that older workers benefit from emotion regulation to a greater extent than do younger workers. They are consistent with the prediction of SST (Carstensen et al., 1999, 2003) that aging is associated with more effective use of emotion regulatory strategies. Emphasis on emotional goals among older adults motivates them to effectively manage their affective responses, especially negative emotions, which in turn contributes to their sales productivity. This may be one mechanism that enables older workers to maintain their job performance despite age-related losses and declines (e.g., Craik & Jennings, 1992;
Schaie, 1994). These findings suggest that the effectiveness of emotion regulatory strategies increases with age. It further supports the emphasis of Baltes and Baltes (1990) that aging is not associated only with losses but also with gains.

**Limitations and Future Directions**

A few limitations should be considered when interpreting the findings reported earlier. This study examined the relationships among emotion regulation, emotional responses, and job performance in a sample of insurance workers, which might have limited the generalizability of the findings. It is likely that workers from other industries may adopt other forms of emotion regulatory strategies like cognitive reappraisal and attentional deployment. Future studies should recruit workers from different industries and occupations. Second, because of the length concern, this study only examined six positive emotions and three negative emotions and used one item to assess momentary task performance. Moreover, the self-report measure of task performance might be affected by social desirability bias as well as an individual’s performance baseline and ongoing affective responses. Future studies should include other work-related emotions (such as proud, optimistic, frustrated, and embarrassed) and more performance items in order to yield a comprehensive understanding of affective experiences and job performance. Third, participants reported their sales productivity in a separated questionnaire. It is possible that some participants might misreport their productivity. Such statistics should be recorded by the researcher directly from the computerized program in future studies. Fourth, younger and older employees differed in the length of working experiences, which may confound the relationship among age, employment of regulatory strategies, and job performance. Even though past studies showed a nonlinear relationship between experience and performance (McDaniel, Schmidt, & Hunter, 1988) and this study did not show any significant influence of working experience on job performance, the potential confounding effect of working experience on age, such as more job-related knowledge and skills, could not be completely ruled out. In addition, the findings are cross-sectional, and there are possible cohort effects on strategy employment. Future studies should examine the phenomenon in longitudinal studies with a closer examination of developmental changes in the use of emotion regulation, health, and job performance over time, in order to minimize the effects of cohort.

Finally, given that prior studies on suppression were mostly done with Americans (e.g., Butler et al., 2003; 2007; Siemer, Mauss, & Gross, 2007), although this study sampled Chinese workers, the cultural generalizability of our findings should be examined in future studies. The discrepancy between prior Western findings on the negative consequences of suppression (e.g., Gross & John, 2003; Richards & Gross, 2000) and our findings might be attributable to the habitual use of suppression in a broad range of situations among Asians (Butler et al., 2007). The importance of maintaining social harmony makes controlling negative emotions more important for Chinese persons. Compared with their Western counterparts, Chinese people are more likely to employ suppression to manage their emotions in social situations (Butler et al., 2007; Huang, Leong, & Wagner, 1994; Matsumoto et al., 2008). Given that adherence to cultural values tends to intensify with age (Fung & Ng, 2006), older Chinese adults may benefit more from using suppression at work than do younger Chinese ones. Future studies should examine whether findings from this study can be generalized to other cultural groups.

**Implications of the Study**

Affective processes influence work motivation and job performance (Barsade & Gibson, 2007). With an increasing proportion of aging persons in the workforce, it becomes more critical for management personnel to understand psychological adjustment of older workers in response to age-related changes in goals and motivation. Such understanding is essential for policy makers and employers to implement effective training programs on emotion regulation to enhance the performance of older workers. Inconsistent with prior literature that use of suppression is associated with negative outcomes (Gross, 1998; John & Gross, 2004), findings from the present study demonstrated a negative association between suppression and negative emotions and a positive relationship between suppression and job performance among older workers, highlighting the importance of individual variations in emotion regulation.

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**References**


