Are we really getting better? Lifespan differences in emotion regulatory ability from the perspective of developmental functionalism

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**Preliminary Abstract:** Although it is widely asserted that emotion regulation improves with age, evidence objectively testing this claim is uncommon. In this article, we briefly review data relevant to this important lifespan thesis, arguing that we are nearing the limits of the insights we can gain with cross-sectional, self-report data; designs in which regulatory skills are objectively assessed are needed. Next, we summarize *developmental functionalism*, a framework that makes specific predictions regarding the types of regulation that might be expected to improve (and decline) across the adult lifespan. This view suggests that while skills based in developmentally-acquired knowledge such as situation selection may generally improve with age, skills that rely on capacities that decline (e.g., executive processing) may show age-linked decrements. Finally, we present early data from a study testing aspects of this model. In the study, 64 adults from across the lifespan were required to enhance and suppress anger and sadness expressions after being randomized to being either warned (experimental) or not warned (control) about the forthcoming tasks. Preliminary analyses examining whether suppressive and enhancement ability improves with age and is consistent for anger and sadness across warned versus non-warned conditions are presented. Implications for the objective study of age differences in emotion regulatory abilities and later life adaptation are discussed and directions for future research given.
Although it is widely accepted that emotion and emotion regulatory functioning improve across the adult lifespan (Blanchard-Fields, 2007; Carstensen, Fung, & Charles, 2003; Carstensen & Mikels, 2005; Urry & Gross, 2010), surprisingly little empirical evidence is directly demonstrative of this claim. Broadly speaking, there are three classes of data relevant to this assertion: self-reported affect balance data, self-reported improvements/differences in emotional control, and experimental data in which regulation is objectively assessed. Inferring better regulation based on self-reported emotion is problematic, self-reports on traits or abilities may not correspond with objective assessments (Bonanno, Pat-Horenczyk, & Noll, 2011; Schwartz, Neale, Marco, Shiffman, & Stone, 1999), and studies that objectively assess regulatory performance are scanty. Commentators tend to infer superior regulation based on greater positive affect or accept self-reported regulation as evidence of improved skill. Insights based on inferential methodologies are limited, and the systematic study of age differences in objectively assessed regulatory performance is a necessary next step in this area.

A recent review of lifespan studies in which emotion regulatory skills were objectively assessed (Consedine & Mauss, 2014) concludes by suggesting that although aging does not appear to bring a unilateral decline in ability, different types of regulatory task show distinct patterns of improvement and decline, and distinct tactics may be employed to accomplish the same regulatory ends (Consedine, 2011a; Emery & Hess, 2011; Magai, Consedine, Krivoshekova, McPherson, & Kudadjie-Gyamf, 2006). Overall, there may be improvements in forms of emotion regulation linked to positive states (Isaacowitz, Toner, & Neupert, 2009; Phillips, Henry, Hosie, & Milne, 2008; Shiota & Levenson, 2009), social contexts or use of social supports (Akiyama, Antonucci, Takahashi, & Langfahl, 2003; Birditt & Fingerman, 2005; Opitz, Gross, & Urry, 2012), situation selection or modification (Blanchard-Fields, 2007; Blanchard-Fields, Mienaltowski, & Seay, 2007; Charles & Carstensen, 2008; Charles, Piazza, Luong, & Almeida, 2009), and, perhaps, in acceptance (Shallcross,
Ford, Floerke, & Mauss, 2013). However, skills relying on executive processes may decline. Expressive suppression, for example, shows few age differences (Emery & Hess, 2011; Kunzmann, Kupperbusch, & Levenson, 2005; Magai, et al., 2006; Phillips, et al., 2008; Shiota & Levenson, 2009) and studies of reappraisal to decrease negative emotion suggest reduced ability (Opitz, Rauch, Terry, & Urry, 2012; Shiota & Levenson, 2009), despite greater use with age (John & Gross, 2004).

**Lifespan differences in emotion regulatory skill – the view from developmental functionalism**

Developmental functionalism is a discrete emotions based approach to the study of emotions (Consedine & Magai, 2003; Consedine, Magai, & Bonanno, 2002; Consedine & Moskowitz, 2007) and emotion regulation (Consedine, 2011a, 2011b; Consedine & Mauss, 2014; Magai, et al., 2006), that pays explicit attention to lifespan development. In this view, changes in emotions and emotion regulation across the lifespan involve the conjoint influences of developmental variation in tasks, capacities and tactics. The approach suggests that understanding emotion regulation requires an examination of developmental variation in regulatory targets (the states, experiences or expressions that we are regulating towards or away from – the “task”), the capacities available to accomplish different forms of regulation (e.g., emotional understanding, executive resources), and the strategies that can be used to accomplish tasks given the available resources.

Because different emotion regulatory tasks are based in distinct resource or capacity sets, that have normative trajectories of improvement and decline, it is possible to make predictions regarding the specific regulatory skills that might improve or decline. Developmental functionalism organizes the capacities relevant to emotion regulation – self-awareness, cultural referencing, executive functioning, linguistic ability, knowledge of others, and the like – into two broad
categories: basic biological capacities and acquired characteristics (Consedine, 2011a). Predictively then, capacities in which learned improvement seems likely (reflectiveness, awareness of emotion, emotional and situational knowledge) might enhance forms of emotion regulation occurring earlier in the regulatory process (Gross, 1998), while normative declines in somatic resources, energy, and executive capacities may interfere with “on-line” forms of regulation.

Furthermore, the aging process itself can be seen as creating a pressure to accomplish regulation within the constraints imposed by fluctuating capacities. While some regulatory tasks may become automatized and require fewer resources (Mauss, Bunge, & Gross, 2007; Mauss, Evers, Wilhelm, & Gross, 2006), changes in capacity necessitate changes in both the targets of regulation and the tactics used to attain them. We should expect changes in tactics, with a general increase in the “efficiency” of regulation and a tendency to (a) regulate earlier in the emotion-generation process or (b) use available resources to offset reductions in the capacities needed for on-line regulation. Below, we present preliminary data from a study conducted within this conceptual framework.

*Preliminary data from an ongoing study*

In this initial report, 64 (of a target 120) adults grouped into <40 year and 40+ year groups completed regulatory tasks (enhance and suppress expression during anger and sadness-inducing films) after either being warned or not warned regarding the forthcoming tasks. We expected that when participants were warned, performance would be comparable across age groups because the warning would allow the older group to offset declines in online processing by drawing on other resource sets. However, in the absence of a warning, we expected the younger group to demonstrate greater flexibility in expressive regulation.

Two independent raters, blind to condition, coded expressivity relative to a neutral condition in four, 50 second videos (angry and sad, enhanced and suppressed) for each participant;
scores were coded to indicate greater suppression or enhancement ability. A 2 (age group) x 2 (condition) repeated-measures ANOVA with emotion (anger/sad) and task (suppress/enhance) as within subject variables, and age group and condition as between subject variables was conducted.

Early analyses suggest that warned participants were marginally more successful, $F(1, 56) = 2.57, p < .10$, greater success in modulating anger versus sadness expressions, $F(1, 56) = 18.45, p < .001$, and better enhancement (versus suppressive) ability, $F(1, 56) = 9.11, p < .05$. While there was no main effect for age or evidence for the expected interaction between age and warning, a trending 2-way interaction between task and warning suggested that warnings promoted better enhancement, but did not alter suppression of expression, $F(1, 56) = 3.74, p < .10$.

This interaction was qualified by 3-way interaction between age, emotion, and warning condition, $F(1, 56) = 3.34 p < .10$; when warned, both younger and older adults were better at regulating anger than sadness. When unwarned, however, older adults were no better at regulating anger than sadness. Finally, there was a four way interaction between emotion, task, age and warning, $F(1, 56) = 5.03, p < .05$. Follow-up t-testing indicated that while the older group tended to benefit from a warning when enhancing anger ($p = .068$) the younger group did not. Conversely, the younger adults benefitted from warnings when attempting to enhance sadness ($p < .01$) while the older group did not. There were also additional differences within the older group, who were better at enhancing (versus suppressing) sadness ($p < .05$), but better at suppressing anger than sadness ($p < 0.05$).

Discussion, Interpretations, and Future Directions

Although the number of experimental works examining lifespan differences in emotion regulation has increased across the past decade, the field remains in its infancy (Consedine, 2011a). Few experimental studies have investigated developmental variation in regulatory targets or attempted to experimentally manipulate which resources participants are able to use in regulation
(the warning manipulation). Consistent with prior work, these preliminary analyses found no overall age differences in broad regulatory ability. When participants were warned regarding the upcoming tasks, both younger and older groups performed comparably, being more successful in enhancing (versus suppressing) expressions and being more able to regulate anger (versus sad) expressions. However, warnings appeared to help the older group but not the younger group enhance anger, while the younger group differentially benefited from a warning when seeking to enhance sadness. Consistent with notions that motivational priorities may lead to more socially-facilitative emotion regulation, the older group were better at suppressing anger than sadness, but better at enhancing versus suppressing sadness.

Although these data are clearly preliminary and our analyses underpowered, they provide indications for at least several important possibilities. First, consistent with indications from other lifespan research (see Consedine & Mauss, 2014 for a review), there were no age related differences in the ability to suppress emotional expressions; most effects were in the enhance component of the tasks where the older group performed more poorly when unwarned. While this may reflect issues in coding suppression (i.e., degrees of “less” expression are harder to reliably score than degrees of “more”), it may also be that enhancement is more demanding because it requires the communication of a specific target while suppression simply requires the elimination of all expression. Equally, it may be that differences in suppression are masked because current cohorts of older adults are dispositionally more prone to suppress and thus derive benefits from automatization (i.e., reduced resource demand).

Second, it is also notable that it was in the older group performance during the ‘naturalistic’ (unwarned) condition that most differences emerged; despite being marginally lower in performance overall, this group was differentially better at (a) suppressing anger and (b) enhancing sadness. Such a pattern may reflect age-related practice and/or prioritizations in reducing the
expression of interpersonally-damaging (versus facilitating) expression. It is possible, for example, that the older sample perform more poorly on specific tasks requiring the up-regulation of anger because they must over-ride a tendency to automatically downplay such expressions before they are able to enhance them.

Effective emotion regulation is a critical adaptive capacity in both younger (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Westphal, Seivert, & Bonanno, 2010) and older (Carstensen, et al., 2003; Charles & Carstensen, 2010; Consedine, 2011a) adults. Although these preliminary analyses have taken small steps towards identifying specific patterns of change, they raise as many questions as they answer. Does anticipating a regulatory task impact success differently in adults of different ages? If so, for which emotions? Future studies are needed to identify how the targets of emotion regulation vary across the lifespan and how capacities and tactics interact to determine the efficacy with which regulatory targets are attained. Additional questions regarding the links between regulatory skill and adaptive psychological, social and physical health outcomes are also salient and worth further investigation.
Figure 1 – The task, capacity, and tactic framework as applied to changes in emotion regulation across the adult lifespan (adapted from Consedine & Mauss, 2014)
Figure 2 – \textit{Enhancement and suppression scores for anger and sadness inductions under warned and unwarned conditions in two age groups}
References


